

The Sight-Saving Review

Volume XXI

Number 3

Fall, 1951

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Why Are They Blind?*

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STUDY of causes of blindness in Maryland, made under the direction of a planning committee representing local medical and social agencies.

THE Maryland Society for the Prevention of Blindness undertook a study to show the comparison of the incidence of blindness from treatable ocular conditions with the incidence of blindness from eye diseases for which at present there is no known effective treatment. This was done by gathering medical and social data on the persons whose blindness might have been delayed or prevented, with the hope of finding an answer to the important question of why they become blind. It was hoped also that such an analysis might disclose certain presently known needs in the program of blindness prevention and also indicate some new needs.

Procedure

Plans for the study were drawn up by a committee of ophthalmologists and social workers appointed by the Board of the Maryland Society. Later,

* The authors acknowledge their indebtedness to Miss Ada Miller for the original impetus and planning of this investigation.

the plans were worked out by a group of six trained social workers selected by the committee.

The ophthalmological resources asked to cooperate in the study were restricted to the City of Baltimore, since the results of such a study would probably be affected by the number, type, character and availability of eye resources within the community. Baltimore is particularly favored in this respect, having available to the general public excellent hospital facilities, clinics and a group of well-trained ophthalmologists.

The procedure of study included the examining of each person's complete medical record and, whenever indicated, the conferring with the one or more ophthalmologists to whom the patient was known. Whenever possible, patients were interviewed personally either in the clinic or in their own homes. In a few instances where the patient either lived out of town or had moved from the city before he could be interviewed, a social worker

in the new location was requested to conduct the interview.

Sources of Data

The definition of blindness adopted for the study was that used by the Federal Security Agency, "Visual acuity of 20/200 or less in the better eye with correcting glasses, or a field defect in which the peripheral field has contracted to such an extent that the widest diameter of visual field subtends an angular distance no greater than 20°."*

Three private ophthalmologists, the eye clinics at the Baltimore Eye, Ear and Throat Hospital, the Johns Hopkins Hospital, the University of Maryland Hospital, the Vocational Rehabilitation Bureau, and the Workshop for the Blind provided material for the study. From April 1, 1948 to October 1, 1948, each of these sources submitted the names of blind persons who came to them for service, usually consisting of medical care, vocational training or guidance. The applicants were new to the agency or newly qualified under the definition of blindness.

* "Causes of Blindness Among Recipients of Aid to the Blind," Federal Security Agency, 1947.

After eliminating duplications and those out-of-town patients whose early medical histories were not available, there remained to be studied 96 persons—51 white and 45 colored; 46 male and 50 female. Eleven persons were under 15 years of age; 33 were between 15 and 44; and 52 were 45 years of age, or over.

Age at Which Blindness Occurred

Exactly 25 per cent of the total, 24 persons, were blind at birth; 12 became blind between birth and 30 years of age; 14 between 30 and 45; and 30 between the ages of 45 and 64 years. Only 11 became blind when 65 or over. In 5 cases, the age at onset of blindness was not stated.

Since the blindness of 8 of these persons was due to two different ocular conditions, the committee, for the sake of accuracy, decided to call this a study of 104 cases of blindness, rather than of 96 blind persons.

Table 1 shows the referral source of the 104 cases.

Site and Type of Infection—by Cause

The general picture of the causes of blindness for the group according to the site and type of affection indicates that glaucoma is by far the largest

TABLE 1. REFERRAL SOURCE OF 104 CASES OF BLINDNESS

Source	Number
TOTAL.....	104
Baltimore Eye, Ear and Throat Hospital.....	12
The Johns Hopkins Hospital, Wilmer Oph. Institute.....	49
Private Ophthalmologists.....	18
University of Maryland Hospital.....	6
Vocational Rehabilitation Bureau.....	7
Workshop for the Blind.....	12

TABLE 2. BLINDNESS WHICH COULD NOT HAVE BEEN PREVENTED
(Total, 39 Cases)

SITE AND TYPE OF AFFECTION	Total	CAUSE					
		Trauma, non-occup.	GENERAL DISEASES		Prenatal	Unknown	Undetermined
			Diabetes	Other			
TOTAL.....	39	3	11	1	8	12	4
<i>Eyeball in General</i>							
Albinism.....	3	..	..	..	3	..	..
Degenerative changes....	1	..	..	..	..	..	1
Glaucoma, hemorrhagic..	1	..	1	..	..	..	..
Myopia.....	2	..	..	..	..	2	..
Phthisis.....	2	2	..	..	..	..	..
Retrolental fibroplasia...	7	..	..	..	..	7	..
<i>Crystalline Lens</i>							
Cataract.....	1	..	..	..	1	..	..
<i>Choroid and Retina</i>							
Macular degeneration....	4	..	..	..	1	3	..
Retinitis pigmentosa.....	2	..	..	..	2	..	..
Retinopathy.....	10	..	10	..	..	..	..
<i>Optic Nerve, Visual Pathways and Center</i>							
Optic nerve atrophy.....	4	1	..	..	1	..	2
Retrobulbar neuritis.....	1	..	..	..	..	..	1
<i>Vitreous</i>							
Recurrent hemorrhages— Eales' disease.....	1	..	..	1	..	..	..

single cause of blindness, 26 cases constituting 25 per cent of the total. Optic nerve atrophy is the next largest, with 15 cases or 14.4 per cent of the total. There are 12 cases, 11.5 per cent, of retinopathy and 7 each, 6.7 per cent, of leukoma of cornea, detached retina and retrolental fibroplasia. The remaining 15 types of disease, only 29 per cent, occur from 1 to 4 times each.

Among the etiologic causes of the blindness, "unknown" appears most frequently: 39 times, or 37.5 per cent. All of the 7 retrolental fibroplasia cases and all but two of the 26 glaucoma cases are included in this group. In 13 cases, the cause is "undetermined" while "diabetes" accounts for 11, "syphilis" for 10, and "prenatal" for 9 cases.

Some Blindness Could Not Be Prevented

For the purpose of this study, the cases were divided into two groups; the first group (Table 2) consists of 39 (37.5 per cent of the total) instances of eye diseases for which there exists at present no known effective treatment. Blindness in these cases could not have been prevented, regardless of care or treatment.

Fortunately research is being conducted on most of the conditions from which these persons suffered, and it is hoped that in the future a similar study would show a smaller percentage of such cases.

Diabetic Retinopathy

Of special mention in this group are the 10 patients suffering from diabetic retinopathy. Eight of these patients were over 45 years of age and had had diabetes for some time. One other was 31 years of age, having had diabetes since childhood. In some instances the diabetes was not discovered until it had become well established, but these did not seem to fare any more poorly than the cases which were diagnosed early and treated competently.

These patients were rather discouraged about their blindness. One reason for this was probably the doctor's inability to give them any specific hope for improvement of their eye condition.

Dr. Edwin Dunphy, writing in *THE SIGHT-SAVING REVIEW*,* tells us that we are seeing more of these cases today because diabetic patients using insulin are living longer. The incidence of

retinitis seems to be related to the duration of the diabetes rather than to its severity, Dr. Dunphy points out.

"Unfortunately," he says, "the control of the blood sugar level does not seem to have any effect in retarding the progress of the retinitis when it is once established. It is questionable, also, whether adequate treatment of the diabetes can prevent the onset of the retinitis in many cases. This does not mean that we should not make every effort to give the best possible treatment but it is discouraging to see retinitis develop in cases that have been under adequate treatment for years."

Much Blindness Might Have Been Prevented

The second group of 65 cases (Table 3) is the group with which this study is primarily concerned. These are the cases of blindness resulting from eye affections which ordinarily respond to treatment. In other words, these are the cases of blindness which, under different circumstances, might have been prevented altogether or at least delayed. In this group glaucoma accounts for 38 per cent of the total. Optic nerve atrophy is responsible for 17 per cent, and the other 12 conditions make up the balance of 45 per cent.

Table 4 attempts to classify the reasons why the treatment received by these particular 65 cases was not successful. These reasons are:

1. In 31 cases, or 47.6 per cent, the fault apparently is due to a lack of health education.
2. In 8 cases, or 12.3 per cent, the general practitioner did not administer proper treatment.

* Dunphy, Edwin B., M.D.: "How Does Middle Age Affect the Eyes?" *THE SIGHT-SAVING REVIEW*, XIX, 139-146, 1949.

TABLE 3. BLINDNESS WHICH MIGHT HAVE BEEN PREVENTED
(Total, 65 Cases)

SITE AND TYPE OF AFFECTION	Total	CAUSE									
		INFECT. DISEASES			TRAUMA		Neoplasms	General Diseases	Prenatal	Unknown	Undetermined
		Ophthalmia neon.	Syphilis	Other	Occup.	Non-occup.					
TOTAL	65	1	10	3	4	5	2	3	1	27	9
<i>Eyeball in General</i>											
Glaucoma	25	..	..	..	..	..	..	..	1	24	..
Myopic retinal detachment	1	..	..	..	..	..	..	..	..	1	..
Phthisis	1	1	..	..	..	..	..	..	..	..	..
Other affections of eyeball	1	..	..	..	..	..	1	..	..	..	..
<i>Cornea</i>											
Keratitis	2	..	1	..	..	..	..	..	..	..	1
Leukoma	7	..	..	2	3	2	..	..	..	..	..
<i>Iris and Ciliary Body</i>											
Iritis	1	..	..	..	..	..	..	1	..	..	..
Uveitis	4	..	..	..	..	..	..	..	..	..	4
<i>Crystalline Lens</i>											
Cataract	1	..	..	..	..	1	..	..	..	..	..
<i>Choroid and Retina</i>											
Choroiditis	2	..	..	..	..	..	..	..	..	..	2
Detached retina	6	..	..	..	1	2*	..	..	..	1	2
Retinopathy	2	..	..	..	..	..	..	1	..	1	..
<i>Optic Nerve, Visual Pathways and Center</i>											
Optic nerve atrophy	11	..	8	1	..	..	1	1	..	..	..
Optic neuritis	1	..	1	..	..	..	..	..	..	..	..

* 1 case following cataract extraction.

3. In 15 cases, or 23.1 per cent, blindness resulted apparently because of the peculiar characteristics of the individual case.
4. Eleven cases, or 16.9 per cent, fall

into a miscellaneous group—chiefly accident cases.
Each of these causes will be discussed separately.

TABLE 4. WHY TREATMENT FAILED

SITE AND TYPE OF AFFECTION	Total	CAUSE OF UNSUCCESSFUL TREATMENT			
		Lack of health education	Lack of proper treatment by general practitioner	Limitations of present medical research	Miscellaneous
TOTAL	65	31	8	15	11
<i>Eyeball in General</i>					
Glaucoma	25	21	1	1	2
Myopic retinal detachment	1	..	..	1	..
Phthisis	1	1	..	..	..
Other affections of eyeball	1	..	1	..	..
<i>Cornea</i>					
Keratitis	2	1	..	1	..
Leukoma	7	1	..	..	6
<i>Iris and Ciliary Body</i>					
Iritis	1	..	..	1	..
Uveitis	4	2	..	2	..
<i>Crystalline Lens</i>					
Cataract	1	..	..	..	1
<i>Choroid and Retina</i>					
Choroiditis	2	..	..	2	..
Detached retina	6	1	..	3	2
Retinopathy	2	..	..	2	..
<i>Optic Nerve, Visual Pathways and Center</i>					
Optic nerve atrophy	11	3	6	2	..
Optic neuritis	1	1	..	..	..

Lack of Health Education of the Patient

Unsuccessful treatment of 31 cases seemed due to the patients' lack of knowledge regarding early symptoms of eye diseases and the importance of seeking and carrying out competent medical advice regarding them.

Eight patients lived in rural communities at the onset of their eye complaints, and competent treatment was not available. They waited until they were practically blind before coming to Baltimore for treatment. The reason for their coming here rather than going to some other city was

usually that they had relatives in Baltimore with whom they lived while attending a clinic. They gave as reasons for not coming earlier: (1) inability to afford the expense involved; (2) inability to leave their homes or work for the length of time required to obtain treatment; and (3) lack of realization that their eye condition was serious enough to seek help at such a distance.

These might be partial explanations for their delay, although an even larger group, 10, living right in Baltimore, delayed from 10 months to 16 years before seeking medical attention. Often aware of failing vision in one eye, it wasn't until the second eye was practically blind also that they did something about it.

Most of these patients were from the lower economic level and their attitudes toward blindness followed certain cultural patterns. Many regarded failing eyesight as one of the natural and inevitable consequences of old age which helped to secure their dependence upon relatives or welfare agencies. Others attributed failing eyesight to pregnancy, childbirth, and other physical conditions, or to periods of emotional strain such as illness or death in the family. They hopefully believed that when these conditions or situations cleared up their eyesight would improve.

Many with little or no education did not use their eyes for reading or other close work and so were quite unaware of early symptoms of failing eyesight. One man who worked as a porter at the coliseum first realized his need for eye care when he experienced difficulty in "setting up" the chairs in straight lines. Another man who stored tools on a WPA project found

that he was no longer able to distinguish one tool from another.

Characteristic of this group was a lack of genuine interest in improving their vision. They accepted blindness quite passively and did not engage in any self-reproach for not having made more personal effort to avoid it.

Eighteen of this group consulted general practitioners or optometrists before going to an ophthalmologist or eye clinic. If their eye difficulty was associated with physical discomfort, they usually consulted their family doctor first. If their symptoms were confined to the eye, they sought glasses from an optometrist whom they were inclined to rate according to the fee he charged. They had no concept of differences in training between optometrists and ophthalmologists. Some of the group considered eye clinics inferior because in the clinics they had to wait their turn and the fee was not so high as that charged by the optometrists whom they referred to as "specialists."

Those patients going directly to a clinic were usually persons familiar with the clinic, either through previous personal contact or through information from relatives or friends who had received clinic service.

Treatment, once recommended, was usually not carried out with consistency, and clinic visits were considered inconvenient. This might be explained partially by their lack of drive for good eyesight. However, we must recognize the fact that the older patients, and there were 19 over 60 years of age, often justifiably found clinic attendance a real burden. Many of them had no relatives to bring them, no money for taxi fare, and were too

infirm and handicapped by poor vision to come alone.

Glaucoma Patients.—Of the 31 cases in which lack of health information was a factor, 21 were glaucoma patients. All of these seemed to follow pretty much the same pattern of: (1) ignoring or not recognizing early symptoms; (2) delaying application for treatment until sight in both eyes was practically gone; (3) shopping around among clinics and optometrists for the treatment; (4) not understanding the seriousness of glaucoma, once this diagnosis had been established; (5) not following treatment recommendations consistently.

With glaucoma patients, the delay in seeking help is due partially to the fact that at times their eyesight is better than at others. This suggests to them that their failing vision might be temporary, and they wait to see what tomorrow will bring. The pattern is repeated, and months and sometimes years slip by without treatment. Most of these patients seem to have a very meager understanding of the nature of the disease and the function of the drops in treatment. Thus, many of them take the drops irregularly or discontinue them altogether when they do not observe any dramatic improvement of vision.

Mr. T. is fairly typical of this group. In 1945, while unloading railroad cars, he became aware of failing vision. Because he was unable to continue his employment, he went to an eye clinic, and drops were prescribed. After a few months he discontinued both the drops and his clinic attendance. In 1947, his eyesight growing steadily worse, he consulted an optometrist who suggested he go to a hospital clinic. Instead of following this suggestion,

Mr. T. went to another optometrist where he received a pair of glasses and a bill for \$21.00. A few months later, an insurance collector calling at the home suggested he go to another eye clinic. Mr. T. finally did so, only to find that he was "blind."

Mrs. B. was one of the seven glaucoma patients who lived in rural areas during the early stages of their condition. She first noticed failing vision when she was in her early forties. The letters ran together when she read. She thought this condition was due to her pregnancy and so paid no attention to it. A few years later, when it persisted, she thought it was caused by her "change of life." Her eyesight continued to grow worse and she finally obtained glasses from an optometrist. They did not help, so she consulted several other optometrists. One of them told her that her "eye nerves were bad." At the age of 55 she moved to the home of her niece in Baltimore in order to obtain treatment at a clinic. It was a little late for this, however, since at the clinic she was found to have no light perception in either eye.

Affections Caused by Prenatal Syphilis.—Three cases of optic atrophy and one each of optic neuritis, leukoma, and interstitial keratitis, were diagnosed as resulting from prenatal syphilis. Since these patients ranged in age from 16 to 32 at the time of this study, it was impossible to establish any accurate details of the mothers' maternity care. Although in two of these cases the parents did everything possible to obtain effective treatment for the children's eye condition at an early age, the harm had already been done before the children's birth, through lack of prenatal care and proper health education.

Lack of Proper Treatment by the General Practitioner

In 8 of the 65 cases of preventable blindness, the onset seems to have been hastened by the type of treatment received from general practitioners or in general medical clinics.

Mrs. B., who had both glaucoma and hypertension, suffered three acute glaucoma attacks but was treated on each occasion by the family physician for her hypertension only. When the eye symptoms were finally recognized, the glaucoma had progressed to such a degree that she was "economically blind."

Mrs. S. was advised by her family physician that she was suffering from a mental illness. A couple of months later, when the symptoms persisted, a neurologist found her to have a brain tumor which was causing optic atrophy.

Five cases of optic atrophy followed syphilitic infection. In each case the patient had been treated for syphilis by a general practitioner, in a clinic, or while in the armed services. Three of them had been treated by several sources. All claimed that they had been left with the impression that the syphilis was cured, and none had received any warning regarding the possibility of an eye involvement.

Mr. C., totally blind at 39, received treatment for syphilis in the State Penitentiary in 1934, and again a few years later, while in the army. He thought this treatment had been adequate. He had never heard of blindness resulting from syphilis. Now he feels depressed and confused, saying, "Medicine has let me down."

Limitations of Present Medical Research

Fifteen of the 65 cases of preventable blindness had eye affections for which there is effective known treatment at present, but they did not respond to treatment. In most of these cases, excellent ophthalmological care was received and the patient was cooperative and sincerely interested in improving his vision. The only explanation for these cases is that medical science has not progressed sufficiently to cure all variations of the diseases which ordinarily respond to treatment.

Of these 15, there were one each who had glaucoma, keratitis, and iritis; two cases of uveitis, choroiditis, retinopathy, and optic nerve atrophy; and 4 cases of detached retina. The causes of these conditions were listed as: one each of arteriosclerosis, hypertension, meningitis, sarcoidosis; two prenatal; 4 undetermined; and 4 unknown.

Miscellaneous Causes for Failure

In this group of 11 cases of blindness from eye conditions for which there is known treatment, we have included 1 glaucoma patient unable to accept treatment because of mental illness and the 8 accident cases. Three of the accidents resulting in damage to the cornea and one causing a detached retina were industrial.

Mr. H. was employed by a piano company in 1916, when a wire piano string flew into his left eye. There were no guards to prevent such accidents at the time but they were installed shortly after this accident occurred.

Mrs. S. lost the sight of both eyes when a tray of torpedoes exploded in the fireworks factory where she

worked. There were no accident prevention measures employed in the shop. This accident occurred several years ago and the shop is no longer operating.

Mr. G., twenty years ago, lived on the island of Trinidad. He was employed as an electrician, rewinding armatures for motor cars. While clipping a pipe, a piece of steel penetrated his eye. There was no magnet on the island to remove the steel and infection set in.

In 1934, Mr. P. was mining coal on a hill in West Virginia. Some pieces broke off and struck him about the face and head, causing detachment of the retina in his right eye. He received first aid from a general practitioner and was not aware of any impairment of sight. Two weeks later he noticed spots floating in front of his right eye. This time, the general practitioner referred him to an optometrist in a nearby town who said that the sight had been irreparably lost and no treatment was indicated.

Of the remaining 4 accidents, 2 occurred during play, 1 during household activity, and 1 as the result of a traffic accident.

A young boy of 10 suffered extensive corneal damage when he was struck in the left eye. Three years later he was struck in the right eye, again suffering severe corneal damage.

A scissors penetrated Mr. M's left eye causing retinal detachment and formation of a cataract.

The last case of accident, causing detached retina in both eyes, resulted from the overturning of a truck in which Mr. T. was a passenger. He received treatment in a hospital in Washington; was dismissed in 3 days; then admitted 10 days later to a general hospital in Baltimore where

attempts were made to attach both retinas. This surgical procedure was only partially successful, however, since Mr. T's eyesight with correction qualified him as blind.

Conclusions

Of 104 cases of blindness, there were 39 in which blindness resulted from eye conditions for which there is no known effective treatment at the present time. Another 15 cases did not respond to the treatment that is usually effective for their disease. This makes a total of 54 or slightly over one half of the cases which are due to the present limitations of medical science. Such a situation emphasized the continuing need for research to discover some effective treatment for these particular eye diseases. This responsibility, of course, lies primarily with the medical profession.

In regard to the remaining 50 cases of blindness, the study shows that there are definite responsibilities for the nonmedical group in preventing blindness.

More Eye Health Education of the Public Needed.—This study revealed that 38 persons became blind because they did one or more of the following:

1. Failed to recognize early eye symptoms.
2. Delayed too long in seeking treatment because of failure to understand the importance of early, accurate diagnosis of eye symptoms.
3. Minimized the importance of failing eyesight, not realizing that it might be a symptom of any of several serious eye diseases which cannot be treated with glasses.
4. Sought care first from an optome-

trist or general practitioner who did not administer proper treatment.

Need for Strengthening Patient-Clinic Relationships.—Many of the patients in this study who were treated in clinics were irregular in their attendance. Also, they shopped among the several clinics in the city, thus duplicating valuable professional services.

The apparent reasons for this behavior were the patient's: (1) lack of understanding and acceptance of the diagnosis of his eye condition; (2) lack of understanding of the purpose of the clinic's treatment; and (3) resistance toward the general limitations of clinic service, such as long waiting periods, change of doctors, etc.

Need for Public Education Regarding Accident Prevention.—In 12 cases, blindness was due to trauma so severe that vision was lost. Of these, 4 cases were occupational and 8 nonoccupational accidents.

Need for Further Study to Learn Why "Preventable Blindness" Occurs.—The large group of glaucoma patients

found in this study challenges further inquiry. What can we find out about their social and economic background which might have some bearing upon their failure to seek an early, competent diagnosis of their eye condition? Why do so many of them fail to cooperate faithfully with their treatment?

Another problem for study is that of persons residing in rural areas who do not obtain a competent diagnosis of their eye condition until it is too late for effective treatment. How many of these persons are there right here in Maryland; right here in the vicinity of Baltimore? It would be interesting to make a record of all such persons applying to our Baltimore clinics for eye treatment over a certain period of time and to obtain on each the social data necessary to estimate the need for specialized eye care in rural areas.

Thus, in seeking an answer to "Why Are They Blind?" our study reveals needs and new problems so compelling and challenging that they demand to become a part of our planning for years ahead.

MEDICINE AND SOCIAL WORK.—Medicine helps us to recognize adequate standards of medical care and of public health services, and gives us a knowledge of health resources available to people.—Jane M. Hoey, "Social Work: Its Base, Skills, and Relation to Other Fields," *Social Casework*, Vol. XXXI, No. 10, p. 403.

Eye Safety in the School Shop Program

Spencer B. Hopping, *Member Board of Education**

Hastings-on-Hudson, New York

LEARNING good safety habits in school will prevent eye injuries in industry. The results of a two-year program indicate that complete eye protection is possible in school shops if all are required to wear safety goggles.

THE welfare of our children and the future of our country are founded upon sound, adequate education. Local school boards determine how sound and adequate that education shall be. This is a challenge to our school board membership, which Hastings-on-Hudson has met by integrating safety education with other subjects. The objectives of safety education are to develop desirable attitudes toward safe living; to develop and strengthen safety habits; to develop skills essential to the avoidance of accidents; and to acquaint pupils with the possible hazards of everyday life and the consequences of carelessness.

Why am I so vitally interested in this program? I suppose it all goes back to the time, just prior to my membership on the school board, when a very unfortunate accident happened to a child in one of the lower grades. The teacher permitted her pupils to stand in line with sharp scissors in

hands, to show her their drawings. One child turned around quickly and the scissors of another child pierced one of her eyes, completely destroying the sight of that eye. This was a careless classroom practice, resulting in a court case with a verdict against the School District to the amount of \$12,000. So, you see, school board members must be interested in safety hazards and liability, but they are far more interested in the welfare and future of their students. Eye impairment affects the entire remainder of a child's life. It is much more serious to his future earning ability than the loss of a finger, toe, or even an arm or a leg. We are therefore particularly interested in eye safety.

School men who have shop courses in the high school curriculum should realize the interest which industry has in the possibilities of such courses. They should appreciate the generous support that industry gives the schools both in taxes and in providing work opportunities for cooperative part-time students and graduates. Every-

* Served fourteen years as Board Member: 1937-1950.

thing that the school shop courses can do in the way of furnishing safe habits, developing skills, and personal qualities of responsibility counts heavily in the school's favor.

State and federal safety rules and regulations are at best only minimum requirements. The person working at a machine may be required to be protected by safety goggles, but the person working a few feet away who is sweeping up the floor (not hazardous in itself) is not required to wear safety goggles. Yet at any moment a piece of material may fly through the air from the machine, striking the sweeper's eye. The answer of course is that all should wear safety goggles for complete eye protection.

Pioneer Eye Safety Program

A safety goggle program was sponsored by the Board of Education upon the recommendation of the Superintendent of Schools, Dr. John L. Hopkins, who was impressed by the wonderful results in reduction of eye injuries obtained by many industries which require the wearing of safety goggles by everyone while in the shops. He had special opportunity to observe procedures adopted by the American Car and Foundry Company with which the writer* is associated.

During the summer of 1949 the Board of Education purchased safety goggles for each shop student. They were greatly indebted to Don Kimball, president of The Kimball Safety Products Company of Cleveland, Ohio, who personally came to Hastings to train the school nurse and shop instructors in the proper way to fit the safety goggles. The goggles furnished

were of the spectacle type, similar in weight and appearance to regular glasses. The frames are made of stainless steel. The lenses are 6.00 diopter curve, case-hardened glass. They may break but will not shatter.

Safety Goggles Mandatory

With the opening of the school year in September 1949 the wearing of spectacle type safety goggles became a requirement for all students and instructors in the metal and wood shops. Upon entering the school shops, the superintendent, principal or visitors put on safety goggles, too, for their own eye protection and to set a good example to the students.

Plano lenses (without correction) were used for all students without sight deficiency. When corrective lenses were indicated (less than 5 per cent) the student obtained a prescription from his own doctor and the goggles were obtained and paid for by the Board of Education. Plano lens goggles cost less than \$2.50 per pair. Prescription lens goggles will vary with the grinding necessary and cost about \$5.00 or \$6.00 a pair. The entire cost of an injury to one eye. Protection was considerably less than the possible cost of an injury to one eye. Protective temple guards may be slipped on the bows of goggles for extra hazardous work or a cup goggle may be used.

Special cabinets were built in the school wood shop and erected at the entrance to each shop so that students could obtain goggles immediately upon entering the shop. Each student had his own pair of safety goggles—kept them in an individual case and had his own goggle place in the cabinet. The cabinet is much like the letter boxes in a post office. A goggle

* Assistant Manager, Safety Department.



Hastings-on-Hudson, N. Y., Public Schools
100% Safety Goggle Program—woodworking shop



East High Trades School,
Huntington, W. Va.

Operating a grinding machine in the machine shop; note added side guards because of special hazard in this operation



Hastings-on-Hudson, N. Y., Public Schools
School nurse fitting student with safety goggles in presence of instructors of the machine and woodworking shops

Hastings-on-Hudson, N. Y.,
Public Schools
Cleaning station for goggles; note how students' goggles are kept



Machine shop, St. Charles, Mo., High School

cleaning station was installed next to each cabinet.

Accident-Free Record

In every year prior to 1949 there had been several near-serious eye injuries caused by dust, steel or wood particles lodging in eyes. At the end of the school year last June not a single student had reported to the school nurse or doctor for removal of any foreign substance from his eyes. This perfect two-year record of no serious or minor injuries to students has completely "sold" the safety goggle program. Students and instructors alike find no difficulty in wearing goggles, possibly because they were well fitted at the start. An increasing awareness of many other hazards about the shop and an increasing observance of shop safety regulations has resulted.

The Wise Owl Club is an interesting feature of the safety goggle program. After the safety goggles were introduced, Franklin M. Foote, M.D., executive director of the National Society for the Prevention of Blindness presented a charter to the high school for membership in the Wise Owl Club. Hastings is the first public school in the United States to adopt a one hundred per cent safety goggle program for its industrial arts shops! To become a "Wise Owl" a student or industrial employee must offer evidence of a damaged pair of goggles and other corroboration that the wearing of safety goggles prevented the loss of sight of an eye.

Birth of the Wise Owl Club

The origin of the Wise Owl Club had its beginning when Joe Folks, a grinder in the foundry of the American

Car and Foundry Company, St. Louis, Missouri, whose sight had been saved by safety goggles in several accidents during seventeen years' service, began wondering how many other workers were as fortunate as he. Joe wrote to the company's safety division. Could they not have an organization like the Army's Caterpillar Club—with membership limited to those who saved an eye through wearing safety goggles?

Thus the Wise Owl Club was born. Its development by the company was amazingly successful. Realizing that here was an important incentive tool that all safety men could use for the prevention of blindness, ACF made a public-spirited decision and presented it for nationwide sponsorship to the National Society for the Prevention of Blindness.

Plant managers and safety engineers throughout the country have been quick to recognize this new tool for strengthening eye protection programs. By August 1, 1951 there were 2020 Wise Owl Club members, representing 348 plants employing 558,200 employees.

Schools Can Earn Wise Owl Membership

All schools having shop courses which involve eye hazards would do well to follow the lead of Hastings—they should give complete eye protection to all in their shops. Nothing less than a one hundred per cent goggle program will do. They should also request a school charter for the Wise Owl Club.

School board members and school men generally do not realize the many eye hazards in their own school shops. Every opportunity should be taken to acquaint them with these hazards, and

they will respond if they are aware of the facts. Safety supervisor Kenneth M. Barklage, at ACF's St. Charles, Missouri, plant explained the benefits of a one hundred per cent goggle program to Principal Fred Burger so well that the St. Charles High School adopted the program.

Safety supervisor Russell N. Crosby at ACF's Berwick, Pennsylvania, plant explained the benefits to Superintendent of Schools Kenneth L. Terry and, starting with the opening of school this fall, the Berwick schools will have a one hundred per cent goggle program. This school has approximately 2900 students.

Safety supervisor Earl Sang and Personnel Manager Tom Page at ACF's Huntington, West Virginia, plant did not have to sell a goggle program to the Huntington East Trade Schools. They have cooperated with industry for many years. Mr. Lightner, head of the faculty, reports that goggles are required in all shops having eye hazards such as the carpentry, electrical, machine, sheet metal, pattern, welding, automotive, mill and cabinet, airplane and engine, and mechanics shops.

School and Industry Can Reduce Accidents

Schools and industry must work closer together if we are to reduce to a

minimum the 300,000 eye injuries in industry each year. We teach children many things in school which they do not use until they leave the school and take their places in society. Therefore, if we can train children while in school shops to wear safety goggles as a correct and safe way to work, they will naturally continue to wear them when they enter industry. Past experience shows that most men entering industry must be re-educated or cured of bad work habits before they will conscientiously wear safety goggles. In other words, because the schools did not require the wearing of safety goggles while in school shops, men find it hard to believe it necessary to wear them in industry. Far too often it takes the loss of an eye to sell them on wearing safety goggles. I firmly believe until school shops have a one hundred per cent goggle program, they are not adequately educating their children in safety for their future welfare. After all, not too many years ago these 300,000 men who suffered eye injuries were students in schools, and had they been taught then to wear safety goggles, what a different picture the statistics would show—and so many more useful eyes saved!

One thought for safety well taught and learned in school can prevent a thousand regrets in industry.

Let there be Sight—for all.

The Danish Sight-Saving School

Johannes Rau

Copenhagen, Denmark

ALTHOUGH American authorities do not approve of the segregated program, it is always of interest to hear how the other fellow does it.

THE municipal sight-saving school in Copenhagen was established in the year 1922. A special committee appointed by the school authorities of the town examined the school children and found 26 in need of special education because of seriously defective vision. Those children were transferred to two sight-saving classes which had been established for them in connection with one of the schools for mentally retarded children. This combination, of course, proved to be unsatisfactory, and parents as well as teachers were eager to change this situation. At last the school officer moved the sight-saving classes to another building, but now the classes were connected with classes for children with speech difficulties.

Some years later the sight-saving classes again had to share a building with classes for mentally retarded. Although the children in the sight-saving classes never were taught with the children in the classes for mentally retarded, it grew still more difficult to have those two very different types of children close together in the same

building. There were difficulties on the playground and with parents who did not want their children sent to a school which, they said, obviously is a school for children with subnormal intelligence. In addition, still more children were being sent to sight-saving classes so that at the end of the war there were seven classes with about 70 children, and it was absolutely necessary to find another and larger building for the school.

This brief survey of the history of the school was given in order to explain why we now chose a segregated sight-saving school. We got a new building specially equipped for us but, because of lack of materials after the war, the school was built of wooden materials left by the Germans.

The school is a one-storied building with skylights. Those skylights are placed at the ridge; besides, all rooms have a ceiling of sand-blasted glass. Between this ceiling and the skylight are placed all the installations for artificial lighting which are of utmost importance because of the dark winter in this country.

Periodic Check-ups

All children in the schools of Copenhagen are regularly examined by the school physicians, and all children with defective eyesight are sent to their own eye specialists. Most Danish people are members of a sick benefit association and have free specialists. Those who have no insurance are sent to public clinics.

If a child, after treatment and possible correction with glasses, still has visual acuity below normal, he is sent to the ophthalmologist of the sight-saving school, who decides whether the child needs the facilities of the sight-saving school. Ordinarily, with vision of 6/16 or less they are transferred to the special school. Children with vision of less than 6/60 are sent to the institution for the blind.

The average child has normal vision, but children with a better than 6/18 vision may be transferred if they need special care, e.g., children with progressive myopia or chronic conjunctivitis. If the ophthalmologist has any doubt whether to transfer a child, he consults the child's school.

Also children from the schools in the outskirts of Copenhagen are accepted as pupils, if the ophthalmologist recommends them and if their home municipality pays for them in our school.

Visual Defects

The school is for children with normal intelligence. Children who are mentally retarded and have defective eyesight are sent to the schools for mentally retarded, because their low I.Q. is considered to be their main handicap. This is the rule, but there are some exceptions. Children with

serious eye defects such as aniridia, glaucoma, or cataract are accepted with an I.Q. down to about 80, because they are considered able to learn a little more in the sight-saving classes, and they are so few that they cannot influence the school. Of course it would be better to have special schools or classes for those children, but this is not possible because of the small number of children in need of this care.

Our school has at present 83 pupils distributed according to their eye conditions, as shown in the following list:

Myopia and astigmatism.....	10
High myopia.....	8
Myopia with nystagmus.....	3
Hypermetropia.....	7
Hypermetropia with astigmatism	9
Hypermetropia with strabismus or nystagmus.....	9
Cataract.....	13
Optic atrophy.....	4
Nystagmus with strabismus.....	4
Nystagmus.....	1
Glaucoma.....	3
Microphthalmos.....	1
Aniridia.....	2
Coloboma iridis.....	1
Luxatio lentis.....	2
Albinism.....	2
Keratitis.....	1
Astigmatism.....	2
Hydrophthalmos.....	1
	<hr/> 83

The pupils of the sight-saving school are examined regularly by the ophthalmologist of the school. The teachers can send a child to him as often as they find it necessary, and the parents, too, can consult the specialist whenever they want to. Spectacles

prescribed by the specialist are paid for by the school, if necessary.

Lighting

In order to find out what kind of lighting is the best for sight-saving classes, a variety of lighting installations is being tried. Two classes are lighted by 24 filament lamps with reflector. Light at the desk tops in these classes is about 40 footcandles. The blackboard is lighted by 7 lamps of the same type.

Two classes have 125 ordinary filament lamps, and light at desk tops is 30 footcandles. At the blackboard in one of these classes there are 25 lamps of the same type.

Some classes are lighted by 24 fluorescent tubes, light at desk tops amounting to 50 footcandles. One of these classes has three tubes at the blackboard.

Our experiences seem to indicate that ordinary daylight from skylights is a good thing to have in these classrooms. Maybe I ought to mention here that there are also the usual rather small windows in the classrooms, but we find it necessary to have a certain amount of light from one side in order to help the children to see forms better.

We have now had these forms of lighting for more than two years, and our experiences have shown us that an illumination power of about 50 footcandles is the best for this purpose. Both teachers and children are very glad to work in the rooms with fluorescent light. Fluorescent light at the blackboard has also turned out to be very good, because it gives a well-diffused light over the whole surface of the blackboard.

There has been some resistance to our use of fluorescent light in a sight-saving class, but this lighting system is recommended by our eye specialist, and neither he nor the teachers have noticed any harmful effects. We hope to be allowed to go on with the lighting experiments. Besides the lighting installations mentioned above, all classes have lamps which can be placed on the tables of the children who need them.

Equipment

In the classrooms of the first four grades all blackboards are on rollers so that each child has a writing space of about 3 square meters. The chalk is of normal size, but very soft so that it makes a heavy line. We think that chalk of normal size is handier for the children, and since it is very soft it makes sufficiently clear lines without difficulty.

The desks and chairs of the classes are not fixed, but can be moved into any position which suits the needs of the individual child. The desk tops can be raised and used as bookrests during reading. When the desk top is raised a writing flap can be drawn out, so that the child can write down information from the book on the stand, copy illustrations, and so on.

In all classrooms there are installations for radio and gramophone.

Curriculum

The children are distributed in 8 classes according to their ages. The few mentally retarded children are placed according to their mental ages, if possible. There are 8 to 12 children in each class. The small number makes

it possible for the teacher to know the children very well, to work out an individual plan for each child, and to help the child at the right moment.

The curriculum is nearly the same as in the ordinary school. In the lowest grades we cannot always obtain the same results as in the normal classes, because our children are so different and work rather slowly. In the classes for older children, however, the pupils are tested in the same way as ordinary school children and with the same results.

Children with special reading difficulties, not due to their defective eyesight, are given special instruction in reading, spelling and articulation, like other slow readers in the town. This instruction is given 2 to 5 hours a week in some of the ordinary lessons, and the children are taken away from their class and taught by a special teacher who is a regular teacher at the school.

Children's Eyes Spared

The daily work in the classes is, of course, arranged in such a way that the children's eyes are given as little work as possible. History, geography, natural history and so on are given mainly as oral lessons. Lessons in Danish and arithmetic are given in such a way that the children alternately have close work in their books and work at the blackboard. In the two youngest classes nearly all written work is done at the blackboard. Only a slight training in letter writing is done, with pencils in books with heavy lines specially provided for the school. In the higher grades some written work is done in such special books, but only for short periods—about 25 minutes. After

that the child again works at the blackboard, or with some oral work.

The curriculum involves much manual work such as woodwork, drawing, sewing, and in the classes for older children, cooking. Also the boys have some lessons in cooking, and generally they are very fond of it. Here I can tell that two of our boys who have graduated are now cooking in ships, and they are very contented with the job, which seems to be very good for boys with defective eyesight.

Selected Gym Work

Gymnastics is given in the same number of hours as in the ordinary school, but of course, only exercises which can be done without risk for the weak eyes. From fourth grade on, all children are taught swimming, and they are immensely fond of these lessons. They feel that they are sportsmen like other children.

In the autumn two of the oldest classes are sent to a camping school for about six weeks. In this way we try to familiarize the town children with the country, and make them interested in open air games so that they may learn to undertake leisure-time activities which cannot fatigue their eyes and which can give them better health. This camp work is a continuation of work done during the whole school term to make the children understand the need of taking care of their eyes, and try to make them interested in jobs which will not harm their eyes.

Vocational Guidance

This guidance is continued also after the children have left school as

vocational guidance. Pupils who have left the school are brought together at meetings, and we have also tried to have them form a club, which they have been very glad to do. This club is mainly for those who have left school during the last two years—not for older pupils—because we know very well that our most important duty is to make ourselves superfluous, and to encourage the children to go along in life without special help so that they may feel equal to their comrades with normal sight. The fact that the school is segregated makes our daily work easier, but it demands an extra effort in our work to help the pupils keep contact with normal life after they have left school.

Prepared for Normal Life

But are our children able to live a normal life? This essential problem was the subject of an investigation which was undertaken after the first twenty years of the school.

Of the 128 children who have left the school during this period, 81 were able to earn their own living without any aid; 13 receive more or less help from the community; 18 were helped through the special law for blind persons; 4 are under other forms of special care; 3 have died; and from nine we could not get any information. This shows that the school has succeeded in helping most of the children to live among other seeing people. The rather great amount of persons aided after the law for the blind is due to the uncertainty of finding the right children in the earlier days of the school. The number indicated chil-

dren receiving help involves those who get temporary help during their vocational training.

Further Facilities Needed

Besides the school in Copenhagen, there is a sight-saving school connected with the state boarding school for blind, at Kalundborg, and lately there has been opened a sight-saving class in a town in Jutland; but of course, we need many more classes.

During the war the Danish state appointed a committee which was to make an investigation of the problems of the education of physically handicapped children. This committee proposed that sight-saving classes were to be established in all towns with 10,000 children or more. In smaller towns and in rural districts the children are to be taught in the ordinary classes by means of special materials made on the state's account. Part of this recommendation has been carried out—the state has made some material—but the greater part of the plan has not yet been carried out because of the great lack of materials and money in this country after the war. It is however certain that the plan will be realized because the Danish public school law says that every kind of special education for handicapped children is to be established. It is to be expected that the education of the handicapped will develop quickly when this plan is carried out, because all costs in connection with this special education are to be paid by the state, and therefore it is expected that local authorities will be eager to realize the plan.

Vision Program Saves Eyes and Dollars*

D. M. Farrell

Shell Pipe Line Corp., Houston, Texas

FOUR-year period following vision program shows a reduction of 81.7 per cent in cost of eye injuries.

EYE injuries are painful!—obviously so to the employee—and more so to management, when it is spending over \$4 on each employee yearly just for taking care of injuries to his eyes.

That was the way we at Shell Pipe Line Corp. felt at the end of 1946, when we found that it was costing us an average of \$4.37 for each of our 1,200 employees for eye care. That year, eye injuries had cost \$4,262 and, in addition, we had spent \$987 for safety goggles.

We discovered that this high cost of eye injuries was due to the low cost of eye protection. Employees were not wearing the eye-protection devices that had been furnished to them. If they were wearing personal prescription glasses, the extra pair of coverall safety goggles was cumbersome and hard to keep clean, as well as not being too comfortable. For many employees in need of eye protection, but not aware of it, the plano goggles aggravated existing visual discomfort. Finally, goggles were bought all in one size and very little thought was given to their adjustment or servicing.

Management took a bold step once it was informed of this situation. The

question was: If we spend more on prevention, will we spend less on compensation and medical expense, and will the net result show a profit on the investment? To insure that visual comfort and efficiency plus protection would be achieved, all employees were to be checked on a scientific visual screening instrument to determine whether they needed a professional examination. It was also decided to furnish each employee wearing glasses who was found to need protection, with a spectacle-type goggle having lenses incorporating his personal prescription. In addition, all other employees who needed eye protection, but who did not require prescription lenses, would be furnished with spectacle-type safety goggles, individually adjusted and fitted.

To do all this, of course, we needed outside help and the industrial vision program was undertaken. The operation of the program itself was placed under the direction of company physicians at each of our three area offices: Texas Gulf, West Texas, and Mid-Continent.

A screening instrument was leased to us for each local area, and a consultant spent a week with us installing the program. This included teaching members of our safety department,

* Based on "Shell Eyes Eye Injuries," *The Oil and Gas Journal*, October 12, 1950.

under the direction of Shell's physician, how to do the checking with the screening instrument, how to operate it, and how to record the results. In addition, our people were also taught how to measure for, fit and adjust spectacle-type safety goggles for those employees who did not need visual correction, but were found to need eye protection due to the hazardous nature of their work.

Goggles Provided

The main feature of the program was to provide each employee found to need his eyes examined, with the necessary corrective-protective goggles (prepared according to his doctor's prescription). This may sound as though it were a big item of expense, but it has certainly paid off. Incidentally, each employee referred for examination selected his own professional man and paid for his examination and other services.

With the vision screening device, a check of 14 basic vision functions can be made in an average of 5 minutes. These functions include (at both the standard far tests or the equivalent of 20 feet and reading distance): acuity of each eye separately and together; ability to use both eyes together; eye muscle balance in a vertical and lateral plane; and depth perception. In addition, a simple yet basic color test was given to discover those who lack proper color discrimination.

One other important point should be mentioned. Most of our work is performed outdoors and working groups are widely separated. Hence it would have been inconvenient and expensive to bring employees into a central office for their vision check.

The testing instrument is portable, however, and we were able to screen each group on the spot.

The program was announced in our company magazine. The method of screening was fully explained and the means by which employees were to be furnished with eye-protection devices. In addition, posters and leaflet announcements were used to gain employee cooperation. Meetings were also held with supervisors and the operation of the complete program explained in detail. Questions on the program were invited and answered concisely and fully.

Our vision-screening program got under way in the first quarter of 1947 and in a few months all 1,200 employees had been screened.

Twenty-eight per cent of the employees had some type of significant visual difficulties. Of the total screened, 18.4 per cent were referred to vision specialists for a complete eye examination. The remainder had such defects as poor depth perception, or poor color discrimination. We found, also, three employees with vision in only one



Here a worker's vision is being checked for 14 basic functions. Employees found to need their eyes examined are referred to the professional man of their choice.

The cost of eye care and the savings made after Shell Pipe Line Corp., Houston, instituted a corrective-protective vision program is graphically illustrated by this chart, covering the years 1946-1949.

eye—and our records had listed them as having vision in both!

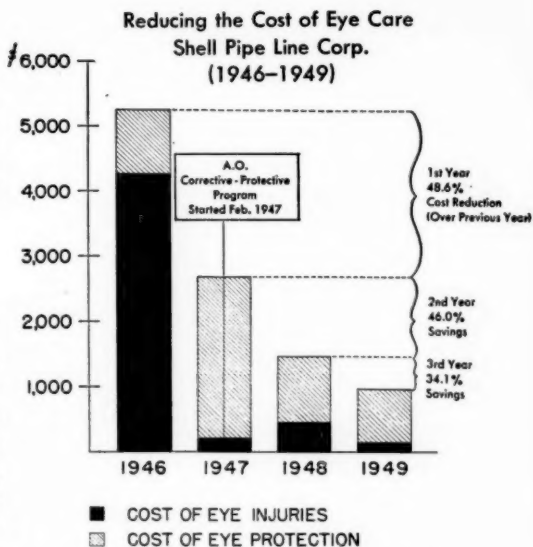
Of those workers referred for further examination, more than half were already wearing glasses. Similar results can be expected in most companies as vision begins to decline early in middle age, usually about 40. It is at this time that bifocals are usually prescribed, for instance.

Reports immediately indicated that employees were wearing their safety spectacles, and worker morale had been definitely raised because of the company's modernized program. But a company still must operate at a profit and eye protection cost must be justified. At the end of 1947 we took a long and hard look at our expenditures and found definite and large dollar savings!

Vision Screening Pays Off

In 1947, total eye cost had dropped 48 per cent from 1946. Cost of eye injuries had plummeted to a total of \$204 from our previous \$4,262. Our initial investment in a comprehensive eye protection program was paying off! And our outlay for prevention should be much less in the following years. Would eye-injury costs remain low also?

Now, after three years of experience with this complete eye program—pro-



tection and correction—we have the answer to that question and are very proud of our accomplishments.

The figures speak for themselves. In 1948, with a heavy construction program, our total cost dropped again. Cost of the program and the furnishing of protection plus the cost of eye injuries amounted to only \$1,454, compared to 1947's \$2,695 and 1946's \$5,249. And in 1949, it was reduced still lower—to \$958—81.7 per cent below our 1946 costs.

In 1949, we rescreened all employees, as two years is the maximum time recommended between vision checks. That this is a good rule is shown by the number—16 per cent this time—found to be in need of vision examinations.

In 1950, we estimate that our total expenditure should be less than \$500. In other words, eye-care costs will be less than 10 per cent of the 1946 figure—a painful figure—for both employee and management.

Teaching Reading to Partially Seeing Children

Lorraine Galisdorfer, Teacher of Partially Seeing Children

Kenmore, New York

WAYS of planning, initiating, developing, and evaluating the reading programs of children with limited vision are discussed, along with suggestive procedures which facilitate the teaching of reading at various learning levels.

THE teaching of reading to partially seeing children constitutes not only one of the most crucial daily responsibilities of the teacher, but also one of the most significant activities of the children. It is the purpose of this article to present briefly some ways of providing modern reading programs for children with visual impairment.

Since reading is such an individual matter for most partially seeing children, it is possible to discuss only suggestive activities and practices for promoting growth in reading, with emphases upon appropriate materials, basic principles, essential techniques, functional skills, and interest cores.

A guided reading program for partially seeing children is based upon a modern, well-balanced reading program for normally seeing children. What are the characteristics of such a program?

Guided Reading Program

1. *Reading should not be considered a separate activity but rather an integral part of normal child growth and development.*

This concept takes into account the gradual and continuous development of reading habits, skills, and attitudes. At the same time it explains the variations in the rate and time at which different children acquire, develop, and utilize reading abilities. The implication of this developmental philosophy is definitely expressed in the organization of the reading program itself, which should include a graded, sequential series of experiences paralleling the stages and levels of child development in general. Accordingly, these stages of growth correspond to such groupings as the following:

- a. Period of reading readiness—Pre-kindergarten to Grade 1. Provides

experiences to prepare the children for reading.

- b. Period for beginning reading—Grades 1 and 2. Emphasizes activities in word identification and recognition, and reading for meaning.
- c. Period of rapid growth in habits and skills in reading—Grades 2 and 3. Develops independence in word attack and recognition, attitude of reading with and for meaning.
- d. Period of achieving reading power—Grades 4 through 6. Achieves independence in word identification and in coping with meaning difficulties.
- e. Advanced stages—Grade 7 and later. Refines tastes, and develops critical attitudes and appreciations.

These stages of reading development merge and overlap continuously and there is no sharp demarcation. The teaching of reading to visually handicapped children is organized in accordance with these five levels of growth, since children in all stages of development are found in classes for the partially seeing.

2. Reading is only one facet of the larger language arts program, and is closely related to the other communicative skills of speaking, writing, and listening.

A combination of tools and a variety of techniques should be included in reading programs for partially seeing children. Carefully selected reading materials, auditory aids such as the radio, talking book, dictaphone, sound-scriber, as well as opportunities for pupil visiting, observing, creating, sharing, doing, playing, dramatizing, and con-

structing are all needed to stimulate interest and to make learning to read easy, meaningful, and enjoyable.

3. The functional reading program includes different reading activities in a variety of situations and with various materials.

Diversified activities in a program include experiences in phases of purposeful silent reading, word perception and analysis activities, functional oral reading selections, evaluation procedures, and diagnostic and remedial measures. These experiences are provided in a number of varying situations which may involve such reading tasks as study skills, word-attack techniques, motivated oral readings with a listening audience, interpretations and applications of content read, and expressions of critical thinking and attitudes. The types of materials vary with the kind and purpose of each approach in any situation. There are many valuable materials which help to provide for the fulfillment of individual satisfaction, flexibility, and enrichment.

4. Among the factors shaping the reading program are the needs and interests of the learners.

Since interests and needs are correlated with the general phases of growth and development, they are the same for partially seeing as for normally seeing children. However, to satisfy the needs of partially seeing children and to give them equal opportunity for success, it is necessary to modify some of the methods and materials used with their normally seeing peers. The adaptations needed in teaching visually handicapped children to read are largely a matter of degree, rather than of kind.

The necessary modifications in the reading program are essentially those of careful, individual guidance; suitable materials; compensating supplementary aids; and adaptive activities, all of which affect the amount and time of reading.

Individual Guidance

The teacher of the partially seeing must help her pupils acquire basic reading habits, skills, and attitudes despite the individual vision disabilities. She must assist the learners in gaining confidence and competence in an activity which is largely dependent upon the close use of the eyes, without in any way damaging the already reduced vision. Consequently, the well-qualified teacher of the partially seeing must be ingenuous, friendly, patient, resourceful, and informed. Certain limitations are necessitated by the nature of personal eye difficulties and the application of eye hygiene practices in reading situations. Reading for gaining information is employed sparingly and is not practiced for recreation. The children are taught to read efficiently within short periods so as to economize the time and effort involved in such a visual task. It is desirable to explore every possible means of adjusting materials and activities to the pupils' needs, striving continually to make the reading experiences successful and satisfying.

Suitable Materials

There are certain factors which should be given careful attention when obtaining materials for the reading program because of their value in compensating for the visual limita-

tions and in making reading experiences more pleasant. Large-type books or books printed in either 18- or 24-point bold Caslon type are preferred. Other desirable characteristics needed in books are large, clear pictures; good spacing between lines, words, and letters; and good-quality paper, without gloss. A bibliography,* compiled by the writer, contains annotations of current books for partially seeing pupils. Reading materials in the guide are very easily identified as they are categorized according to content. Both an author index and a list of addresses of publishers are included. The useful reference facilitates the careful choice of reading media for the education of the partially seeing. The choice of books is no problem with such a booklist at hand.

In addition to the careful selection of appropriate reading materials, there is a need for other supplementary equipment which extends and enriches the experiences of children. Auditory and visual aids are used to advantage in the language arts field as a means of developing new knowledge, understanding, and appreciation.

The establishment of a developmental reading program through the utilization of basic readers at each level constitutes a frame of reference for the teacher. Basic readers provide for the systematic development of important reading habits and skills. Other materials are employed, also, in order to extend and enrich the basic skills. The use of experience charts is continued throughout the first few levels of reading growth

* Galisdorfer, Lorraine. *Educational Reading Guide for the Partially Seeing*. 1951. Buffalo, N. Y. Foster and Stewart Publishing Corp.

as they provide for broadening the children's daily experiences and satisfying their interests. A large-type picture dictionary and a few delightful, well-chosen, easy picture story books are helpful. Audio-visual aids serve a definite purpose in building a background of information and in promoting readiness. There are many talking book recordings on children's stories for use with partially seeing pupils.* Listening to children's stories on the radio or phonograph is a source of pleasure and fun. Thus the teaching of reading with a series of basic textbooks is enriched and modified with the advantageous use of other supplementary materials, especially adapted to the needs of the partially seeing learners.

At the second and third grade level a few demands are made on the reading program from the other areas of the curriculum. A beginning has been made in the provision of large-type edition books in the fields of science and social studies. *Our World of Science Series* published by Ginn & Co. is available in large-type editions from the American Printing House for the Blind (Kentucky), and the *Unified Social Series* of Follett and Wilcox Co. is printed in large-type books from preprimer level through the fifth grade by Stanwix House Publishers (Pennsylvania).

Problems and topics in content are chosen with care. Limited reading by pupils is done in these areas although with the expanding number of texts in large type appearing in the content fields there is a tendency for pupils to

read more in these studies. Some of the series now reproduced in large-type editions are: the *Geographical Series*, by Atwood and Thomas, published by the American Printing House for the Blind, and the *Iroquois History Series* by Southworth; the *Unified Social Studies Series*, published by Stanwix House Publishers; the *World of Science Series*, published by the American Printing House for the Blind; and the *Safe and Health Living Series*, published by Stanwix House Publishers. The teacher of partially seeing children assists them by reading from other sources and using oral approaches whenever possible, in order to cut down on the wide reading. The modern, large-type aids in the content fields can be used to give practice for learning the new or technical vocabulary, and for conveying ideas through maps and graphs. Regardless of the availability of these additional enriching reading media for strengthening the systematic guidance of basic study skills, it should be remembered that such skills can be developed carefully from the factual selections in the readers. It is important to use efficiently the materials on hand and to realize that the reading experiences in the content fields are used sparingly and supplementally to insure the functioning of skills already developed.

Pupils in the middle grades have occasion to use reference reading for research problems. This task involves the selecting, locating, interpreting, applying, and evaluating of materials. The children need training in these various skills in order to meet the research problems in the content areas. A foundation for this type of

* Fetzter, Margaret. Talking Book Recordings Suitable for Use in Classes for the Partially Seeing. (Mimeo.) 1950. New York, N. Y. National Society for the Prevention of Blindness, 1790 Broadway.



Sand table scene of village and market



Display of Mexican articles in the corridor display case



Children finishing large chalk frieze



Children working on mural of Mexican life

Photos courtesy Lindbergh School, Kenmore, New York

reading activity is laid in the setting of sight conservation facilities. Under the teacher's guidance the pupils cooperatively undertake the making of a special aid or card catalogue of file cards listing worthwhile articles found in the large-type books in the classroom. The cards should be of good size and contain such essentials as the field or area of study, the name of the article, the book title, the volume, and pages. These cards are filed in a box or drawer in alphabetical order. Important classifications relating to problems and topics studied in the different learning areas are utilized for the several categories in the project. Such skills are developed as (1) learning to use the table of contents and (2) learning to alphabetize, classify, skim, summarize, interpret, apply, and evaluate materials.

The estimation of reading growth is based on many measures. One helpful device is a reading chart available in large type, entitled, "How Are We Doing?" published by Scott, Foresman Co., Chicago. The chart may be posted in the classroom and used to discuss the topic of becoming better readers. The goal of reading well and the skills necessary to achieve it are suggested by this chart. This is a practical way to take an inventory of the skills the children have used, and it makes possible a self-check on their own progress.

The standardized test is also a form of measurement for appraising progress. There are a few tests currently available in large-type editions, namely: the *Stanford Achievement Tests*, Intermediate Battery, Forms H and E, and the Advanced Battery, Forms E and H, reproduced by Stanwix House Publishers; and the

New Minneapolis Scales for Measuring Reading, Scale R, Grades 4-9, reproduced by the Special Education Department of the Minneapolis Public Schools. However, accurate interpretation of the test performances is necessary in order to make effective use of the tests so that the accompanying booklet on the administration and scoring of the tests must be thoroughly studied.

Compensating Supplementary Aids

There are many learning aids which compensate in some way for the visual limitations, and which supplement, but not supplant, the carefully chosen materials. These tools reducing the emphasis upon visual materials are such oral aids as the talking book, sound-scriber, and the dictaphone. Other special equipment is also desirable for meeting the needs of partially seeing learners. It is necessary to consider such media and equipment as desks, easels, copystands, chalkboards, maps, globes, room decorations, and typewriters, in order to provide for reading situations without much eye effort.

Talking Book

The value of the talking book as an aid to the visually handicapped is generally understood. Talking book records make it possible to stress the speaking-listening approach to the rich store of stories, poems, music, and plays. Their worth as a means of developing good oral language is well recognized. A good oral language background makes reading easier. The listening activities should be checked for comprehension. This may take the form of informal discussions

concerning the chief characters and main events in a story. A record kept of the recordings heard is a helpful device which may be referred to later if desired. The talking book may be used with or without individual ear-phones depending upon the size and homogeneity of the group of listeners. The machine is indispensable in preparing for a book report as the entire story may be heard instead of read. As more records and recordings become available for the elementary school pupils the aid will become increasingly effective as a means of securing enrichment with the substitution of an auditory device.

Dictaphone and Sound-scriber

The dictaphone and sound-scriber make it possible to decrease reading experiences and increase opportunities in listening and speaking. These oral aids share in providing eye rest periods for the pupils. Informational materials or selections in the content areas may be recorded and later repeated for additional practice or drill purposes, or even to prepare assignments for absent pupils. The recorded materials are filed and then ready for use at any time. They do not have the limitation of being available only on schedule, by loan from the Government or the State Library, as is often the case with the talking book materials. The two valuable tools are conducive to an audio-mindedness as they reduce the amount of reading considerably.

Record Player

The record player is another valuable device in promoting the appreciation of literature and the acquisition

of knowledge. A combination portable record player, which has facilities for playing three different speeds, will play regular records as well as talking book records. The equipment offers another opportunity to correlate speaking and listening activities with the reading program.

There are many other provisions within the sight conservation classroom which assist in minimizing eye fatigue through reading and save much time and visual effort. The ceiling painted in a dull white, and the walls painted in attractive pastel colors give high reflective values. The decoration of the classroom, wherein the wood surfaces are in a dull, light finish, is significant in promoting eye ease and comfort.

Other Equipment

The equipment used in the classroom must not be overlooked in planning a learning program for children with visual defects. The chalkboard is designed to provide the greatest legibility for the children, and sight-saving desks have movable or adjustable tilt tops so that they may bring the books closer to or farther away from the eyes while reading. The desks, light or blond in color, allow the readers to hold the books at a proper angle and a better reading posture or position is attained. Other equipment used to advantage in a reading program for partially seeing pupils is a typewriter with 24-point type which will help the learners express their reactions and thoughts; a copystand for holding material while typing; a large globe, free of any letters and showing water and land forms in two colors; an easel for creative interpretations through paint-

ing on a large scale; and large, clear maps for locating places mentioned in reading experiences. By selecting the physical equipment carefully in the classroom eye fatigue may be greatly lessened during the reading tasks.

Adapted Unit of Work

In order to show how a unit of work is the center of learning activities, the writer is including a brief description of a cooperative undertaking on the study of Mexico. The illustration is used here to point out the actual steps involved in a unit which incorporates the reading activities and other basic learnings for an all-grade integration of living experiences. The unit on Mexico offers a splendid opportunity to work with the children in guiding a combined developmental and integrative program in reading. Various procedures helped the teacher in planning, initiating, developing, and evaluating the experiences in reading and in other related areas of learning. The following account shows how the unit in reading was guided through the four steps mentioned.

Planning

Realizing the importance of strong motivation, group cooperation, meaningful and creative experiences, and feelings of enjoyment and success in facilitating children's learning in a sight conservation class, the teacher was preparing to set the stage for a unit or project which would yield these values. It didn't take long to kindle a spark of interest among a lively group of about twelve partially seeing children whose grade range extended from the third to the sixth.

One day a class member returned from a visit to a Latin American country and brought to class some very interesting objects. Then, fortunately, in a few days a movie was shown on Mexican arts and crafts during the regular weekly school assembly program. In addition, that same week a delightful story about Mexico entitled *The Village That Learned To Read* was broadcast over a local radio station. Interest swelled immediately and so the desire to study about and visit Mexico was very strong. Here was the worthwhile experience the teacher was seeking to extend reading abilities and skills and to integrate them with other learning activities.

Goals were set up by the teacher in order to guide the growth of the children in reading. The major objectives applying to all levels of reading were as follows:

1. To extend the development of reading abilities and skills
2. To promote good reading habits
3. To develop increased appreciation of materials read
4. To supplement visual experiences with other forms of sensory expressions and aids
5. To integrate reading with other areas of study.

Initiation

Various materials were used to launch the new unit, namely: a display including a large, colorful travel poster; clear pictures; and a large picture map of Mexico. The teacher and pupils made a list of questions on which information was wanted, a list of things to do, and a list of things to make. The purposed activities were arranged according to a

good way of working on them: in committees, individually, and as a whole class.

Development

The activities reported here are limited to only one aspect of the language arts' program—the reading experiences and their adjuncts—since this article is confined to the reading program. Suggested reading materials used in the program are grouped according to the reading levels present in the class.

Stories for silent reading on level 1 included:

1. "Juan's Christmas Pinata," in *Faraway Ports*. Easy Growth in Reading Series, Large-type edition, Special Education Department, Minneapolis Public Schools.
2. "Lift for a Burro," in *More Streets and Roads*. Curriculum Foundation Reading Series, Large-type edition. Also the *Think and Do Workbook*, III, Large-type edition, Stanwix House Publishers, Pittsburgh, Pennsylvania.
3. "On to Mexico," in *Neighbors Near and Far*. Child Development Readers. Printed in large primary type, Houghton Mifflin Company, Boston.
4. *Pablo of Mexico*. Guidance of Reading Program. Printed in large primary type, Lyons and Carnahan Company, Wilkes-Barre, Pennsylvania.

Stories for oral reading on level 1 included:

1. *Burro That Had a Name* by Lorraine and Jerrold Beim, Harcourt Brace and Company, New York. (Oversize type.)

2. *Pancho* by Berta and Elmer Hader, Macmillan Company, New York. (Oversize type.)
3. *Roberto* by Ben Yomen, Albert Whitman Company, Chicago. (Hand-lettered text.)
4. *Story of Ferdinand* by Munro Leaf, Viking Press, New York. (Oversize type.)

Stories for silent reading on level 2 were:

1. "At Home in Any Language," in *Times and Places*; "Adventures in Guatemala," in *Times and Places*; "Red Brimmed Hat," in *Times and Places*. Also the *Think and Do Workbook*, IV, Large-type edition, Stanwix House Publishers, Pittsburgh, Pennsylvania.
2. "Marcos in the City," in *Let's Look Around*. Work Play Series. (Reproduced in Large-type by the teacher.) Macmillan Company, New York.
3. "The Swinging Bridge of Vines," in *Making New Friends*. (Reproduced in large type by the teacher.) Ginn and Company, New York.
4. *Children of Mexico* by Stella Burke May. (Reproduced in large type by the teacher.) Rand, McNally Company, Chicago.

Stories for oral reading on level 2 were:

1. *Bullito* by Jean Boreman. Wilcox Follett Co., Chicago. (Very large type.)
2. *Faraway Holiday* by Eula Long. William Morrow & Co., New York. (Oversize type.)
3. Original stories and poems written by pupils on Mexico.

Stories for silent reading on level 3 were:

1. *Mexican Twins* by Lucy Fitch Perkins. Clear Type Publishing Committee, Pompton Lakes, New Jersey. (Oversize type.)
2. "Latin America and Mexico," in *The American Nations*, American Printing House for the Blind, Louisville, Kentucky. (Large-type edition.)
3. "People Next Door," in *Frontiers Old and New*; "Eduardo and John," in *Frontiers Old and New*; "The Corn That Flew Away," in *Frontiers Old and New*; "Lupe's Wish," in *Frontiers Old and New*. (Reproduced in large type by the teacher.) Silver Burdett Company, New York.
4. "Mexico," in *North America*, Volume IV. Clear Type Publishing Committee, Pompton Lakes, New Jersey. (Oversize type.)

Stories for oral reading on level 3 were:

1. Original stories and poems written by pupils on Mexico.
2. Thank you letters from other classes.
3. Letters of acceptance from other classes to see the culminating activity.
4. Original stories about Mexican paintings: *Mexican Child* and *The Flower Vendor* by Diego Rivera.

Materials which supplemented reading experiences were:

1. Films:
 - a. Mexican Children, issued by Erpi Classroom Films, Inc.
 - b. Mexico, one-reel film, issued by Eastman Kodak Co.

2. Poems read aloud by the teacher:

- a. Mexican Market Woman by Langston Hughes.
- b. Pablo by G. H. Conkling. Found in *Gaily We Parade*.
- c. Little Mexican by Alfarata Hilton.

3. Stories read aloud by the teacher:

- a. *Manuela's Birthday in Old Mexico* by Laura Bannon; *Watchdog* by Laura Bannon; Albert Whitman Co., Chicago.
- b. *Pito's House* by Catherine Bryan, Macmillan Co.
- c. *Angelo The Naughty One* by Helen Garrett, Viking Press.
- d. *The Painted Pig* by Elizabeth Morrow, Alfred A. Knopf.
- e. *Juanita* by Leo Politi, Scribner and Sons.
- f. *Popo's Miracle* by Charlie May Simon, E. P. Dutton & Co.

4. Dramatization of original play entitled, *The Mexican Triplets*.

5. Dramatization of story read to the children entitled, *Popo's Miracle*.

6. Records for listening:

- a. *Rolito* by Frank Luther (Decca Record A 313). Songs and stories about the adventures of a boy in Mexico. American Book Company, 351 E. Ohio Street, Chicago.
- b. *Donkey's Serenade*.
- c. *Estrellita (Little Star)*.
- d. *Golondrina (The Swallow)*.
- e. *Cielito Lindo (Beautiful Heaven)*.

Evaluation

Evaluation of the reading progress was made through:

1. Checking the answers to the list of questions about Mexico.

2. Oral tests and games:
 - a. Children each give a newly learned Spanish word.
 - b. Simple one-word oral tests given continuously to check comprehension and interpretation.
 - c. Questions, made by the children, and put in a box for other pupils to draw out later and answer.
3. Short talks given by the pupils in order to apply and interpret ideas read about Mexico.
4. "Thinking of" Game—one child asks a question, another answers it.
5. Short true-false tests on understanding the material read.
6. Teacher observation of oral reading habits and dramatization.
7. Creative expression of concepts and understandings gained from reading experiences:
 - a. Large chalk-colored mural.
 - b. Large product map.
 - c. Miniature village and market scene.
8. Short objective exercises: matching, multiple choice, and filling in words.
9. Observation of enthusiasm, interest, and satisfaction.

Conclusion

The meaningful approaches, carefully chosen materials, and individualized guidance in a modern program of reading, organized on the basis of child growth and development, offer promise for greater progress in the teaching of reading to partially seeing children. Attention to the individual—his needs and

problems—is the keynote for success and the most important aspect of any reading program. The continued personal guidance with the fulfillment of individual satisfactions, the use of suitable, large type materials, the provision of supplementary aids and the adaptation of creative activities should assure continuous reading growth. It should further challenge the teacher and pupils, working together, to seek every opportunity to improve present practices valuable to them.

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Glaucoma Clinics in Brazil

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The Glaucoma Clinic

Sao Paulo, Brazil

GLAUCOMA clinics can and should be established everywhere to help prevent unnecessary blindness.

THE glaucoma clinic, originated by Dr. Mark Schoenberg and Dr. Harry S. Gradle among others, has brought excellent results, as has been generally recognized. However, sufficient emphasis may not have been laid upon the fact that these clinics can be established in any community where there is a normally equipped and staffed ophthalmologic clinic, as long as the directors of the clinic are willing.

In Sao Paulo, Brazil, the Ophthalmological Study Center and the Ophthalmological Clinic of the Escola Paulista de Medicina established the first glaucoma clinic, and the results are comparable to those obtained in similar institutions in New York or Chicago. In Sao Paulo the ophthalmological clinic of the State School of Medicine has also organized a glaucoma clinic, the results of which should be equally favorable.

In general, however, glaucoma clinics as such, are rarely seen outside the United States, and even there the number could be greatly increased to meet the needs of the public.

It is therefore important that the good results obtained by the existing glaucoma clinics should be publicized as widely as possible and even more important to show that the organization of a glaucoma clinic usually depends solely upon willingness to put existing facilities to even better use.

The glaucoma clinic of the Ophthalmological Study Center is an integral part of the Ophthalmological Clinic of the Escola Paulista de Medicina. The glaucoma clinic serves: (1) all the glaucoma patients who apply to the Ophthalmological Clinic; (2) those we suspect of having the disease; and (3) glaucoma patients from other ophthalmological services. These patients are attended by the ophthalmologist in

charge and they are given a complete ocular examination, including history taking; objective and subjective examinations; and provocative tests.

Ophthalmological Preliminaries

History Taking

The doctor tries to obtain a complete history from the patient of his eye disease—what were the first symptoms; when first noticed; the progress of the condition up to the date of the present examination; and what treatment had been given. The doctor also asks about former ocular diseases noted in the patient and in his family.

Objective Examination

The routine ophthalmological examination is made, from an examination of the adnexa to the fundus; special attention is given to the cornea, the depth of the anterior chamber (done by examination with the slit lamp). The appearance of the iris in its entirety as well as the pupil is noted, with a careful observation of its diameter, shape and reflexes, and of the fundus, with a careful examination of the disk. Ocular tension is measured with a Schiøtz tonometer.

Gonioscopy is performed at this first examination whenever the condition of the eye permits this examination. The slit lamp with a Goldmann or Lee Allen contact lens is used.

Subjective Examination

Visual acuity with and without correction, as well as determination of ametropias is obtained.

Visual fields.—Usually perimetry is done with a 3 mm. test object, larger test objects being used only when

vision is very low or when the defects in the visual field justify other measurements. Campimetry is always tried with a 1 mm. test object, at one meter distance; larger test objects are used only when accurate information is not obtained with the former.

Some complementary examinations are requested in each case, principally those dealing with the circulatory apparatus, the endocrine glands, and tests for foci and chronic infectious disturbances are also given.

Special Examinations

In cases which are sent to our service under suspicion of glaucoma and in which the aforementioned examinations have not confirmed the existence of this disease, the provocative tests are used. We generally use the dark test, the drinking test and, when these are negative, the mydriatic test. In these last mentioned cases as well as in those of proven glaucoma in which the tension is low, the nichthemeric curve of tension is measured whenever possible, due to the necessity for hospitalization.

In certain cases sensitivity to light and dark adaptation is verified.

Medical Social Work

Once the diagnosis of glaucoma is confirmed the patient is sent to the medical social worker. Prevention of blindness from glaucoma depends largely on social service, which is responsible for seeing that the patient understands his problems and continues treatment permanently. To accomplish this, the medical social worker must be able to explain to the patient the meaning of his disease, and the reasons for the necessity of

permanent treatment; and she may be called upon to help him solve his problems either domestic or dealing with his work, economic or psychological which might prevent or disturb continuous treatment or be a factor in affecting the course of his eye condition. The social worker interviews the patient every time he comes to the Clinic, and she also makes home visits from time to time. She inquires into the patient's way of life, his habits, food, working conditions, vices, etc., and relays whatever is pertinent to the case to the doctor in charge. She also arranges for the patient's appointments at the Clinic, reminding absentees by telephone, letter or by house calls, always emphasizing the fact that suspension of treatment can be fatal for his vision.

Follow-up

Following the initial ophthalmological examination, attendance at the Clinic for subsequent examinations and evaluation of therapy is determined by the doctor according to the progress of each case. It may be daily or even monthly, depending on the condition of the patient. Every time the patient comes to the Clinic, he is seen by the ophthalmologist in charge who gives him an objective examination and measures the tension and visual acuity; visual fields are taken at variable intervals.

Orientation of treatment depends on the progress of the case, the tensional curve, visual acuity and visual fields being taken into consideration. Other factors such as the possibility of the patient's remaining under medical care, the way in which he follows the prescriptions, the facility he has of

seeing an ophthalmologist at the first signs of any abnormality in his eyes, familiar environment and even the degree of his intelligence, influence therapeutic orientation and especially indication for operation. The medical social worker furnishes the doctor with this data, which she obtains during her interviews, and he decides what course to recommend.

Whenever the patient returns to the Clinic he is seen by the social worker who obtains information as to his condition, his problems, the difficulties which he found in carrying out the treatment prescribed. She takes the necessary steps to solve the patient's difficulties and clear up any doubts which he might have.

Special Record Card

Many patients suffering from a chronic disease have a tendency to consult other doctors in the hope of a radical and definite cure for their troubles. This is generally detrimental to the patient who temporarily interrupts his treatment. In addition the new doctor has no way of knowing about the medical history of the disease.

It is the practice in our glaucoma clinic to give the patient a record of the most important facts noted at each examination, and he is asked to bring this card with him at every visit. He is also told to take the card with him should he consult another doctor, in which case the latter is requested to register his findings also. Thus, any doctor can verify the progress of the disease up to the day of consultation, and know how the patient reacts to the drugs prescribed; in this way he can prescribe without delay.

Prevention of Blindness

In the two year period before the establishment of the glaucoma clinic in the Ophthalmological Clinic of the Escola Paulista de Medicina, 81 per cent of the glaucoma patients stopped treatment without a good reason; 11 per cent stopped due to justifiable reasons (moving out of town, going to another doctor, death, etc.) and only 8 per cent remained under treatment. After two years of operation of the glaucoma clinic, 11 per cent of the patients stopped treatment without justifiable reasons, 24 per cent discontinued for good reasons; and 65 per cent remained under treatment.

Unfortunately we cannot as yet speak of a cure for glaucoma, and even

less can we discuss its prevention. There is no doubt, however, that blindness through glaucoma is chiefly due to late diagnosis of the disease or to abandonment of treatment on the part of the patient. A late diagnosis generally depends upon the patient himself who has only sought medical aid in the advanced stages of the disease. But it may also be due to a careless examination on the part of the doctor.

Glaucoma clinics can decrease the number of blind by a complete systematic examination of all the patients whose complaints, case histories, or ocular symptoms suggest the possibility of glaucoma; and by a strict follow-up and continuous treatment of each case.

A.M.A. RESOLUTION APPROVING PROGRAM OF THE NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS, ADOPTED JUNE 13, 1951

"Whereas, It is estimated that 260,000 Americans are blind and many hundreds of thousands more are severely visually handicapped; and

"Whereas, Much of this blindness could be prevented by research to improve methods of diagnosis, treatment and prevention, by education of the public and other groups and by promoting the provision of such preventive services as vision-testing of children, industrial eye programs and social service follow-up; and

"Whereas, The National Society for the Prevention of Blindness was organized in 1908 to unite lay and professional forces in an all-out attack against unnecessary blindness and has carried on its program over the years, working closely with the medical profession and all interested groups; therefore be it

"Resolved, That the American Medical Association approve the program of the National Society for the Prevention of Blindness for the promotion of research, education and preventive service."—Excerpt from Report of Reference Committee on Miscellaneous Business. *Journal of the American Medical Association*, Vol. 146, No. 9, p. 848 (June 30), 1951.

Around the World

England

Tuberculosis of the Eye

The Ministry of Health established the first British unit for treating tuberculosis of the eyes at White Oak Hospital, Swanley, Kent. The unit, which was opened June 7, 1951, is under the direction of Moorfields Hospital.

Campaign Against Blindness in Colonies

At the inauguration of the British Empire Campaign Against Blindness during a luncheon given at the House of Lords on May 23, Sir Bernard Paget, chairman of the appeals council disclosed the fact that an estimated million population in the Colonial Empire are blind—equal to three times the blind population of Great Britain and the United States—and that 75 per cent of such blindness and of eye disease in general is preventable. The British Empire Campaign Against Blindness is sponsored by the British Empire Society for the Blind, which was incorporated January, 1950. The work planned includes (1) intensive campaigns in representative regions to demonstrate practical ways of preventing eye diseases; (2) continuous education of the public on how to conserve their own and the children's eyesight; (3) grants for

research, eye hospital and clinic improvement, and training centers; (4) establishment of expertly staffed regional offices which will serve as centers for the coordination of official and voluntary activities. Among the first steps was the recent visit of the Society's secretary, Mr. J. F. Wilson, in Nigeria and the Gold Coast, to establish a West African office and plan the first eye survey in the Northern Gold Coast, a region which includes a large blind population as well as many victims of onchocerciasis. Active in the campaign of the Society are the British as well as the Canadian Institutes for the Blind.

Royal Society Publishes Industrial Monograph

The Royal Society for the Prevention of Accidents has added a pamphlet on "Eye Protection for Industrial Workers" to its material used in providing technical as well as popular information on all aspects of safety.

Among the topics outlined in the 28-page bulletin are British legal requirements; the description of process revisions as well as types of safety devices, including goggles and helmets; space is also devoted to discussion of eye protection in connection with special hazards such as welding, infrared rays, chemicals and molten metals.

Scotland

Study on Monocular Blindness

The Department of Health for Scotland recently released the report of a subcommittee of its Scientific Advisory Committee, on the subject of monocular blindness in children and adults. The purpose of the study was "to survey all possible sources of information on monocular blindness and to analyze and report on any data which could be obtained." Represented on the committee making the study were the following: Thomas Ferguson, M.D., professor of public health, Glasgow University, chairman; Col. R. M. Dickson, M.D., director of the W. H. Ross Foundation (Scotland) for the Study of Prevention of Blindness; Miss J. S. Mackenzie, Ministry of Labour and National Service; John Marshall, Esq., Surgeon to the Glasgow Eye Infirmary; H. E. Seiler, Esq., M.D., Senior Deputy Medical Officer of Health of Edinburgh; P. L. McKinlay, Esq., M.D. and W. M. Robertson, Esq., Department of Health for Scotland. G. Fortune and T. B. Skinner of the Department of Health for Scotland acted as secretaries.

The standard adopted for monocular blindness, in adults and children, was 6/24 or less in the "blind" eye, 6/12 or better in the other eye. In the case of preschool children, the condition was determined by eye defects found.

The survey revealed that the incidence of monocular blindness, as defined above, in school children is 7 per 1,000, varying from 1.4 in school entrants to 10.4 in leavers. "The outstanding causes in school and preschool life," says the report, "are squint, accounting for 56 per

cent, and amblyopia, accounting for 18 per cent of the total cases. The only other important causes are congenital defects and injury, each of which accounts for 8 per cent of the total cases. Irrespective of cause and for most of the individual causes there is a higher incidence among leavers than entrants; but apart from injury, sex differences are unimportant. . . . Squint as a cause of monocular blindness is in slightly greater excess in the urban as compared with the rural areas."

Concerning the incidence of monocular blindness in adults, the report indicates that there was such a wide variation between the industrial groups examined, that any average figure for the adult population as a whole would be subject to a large margin of error. For instance, examination of 378 young women in a Glasgow printing firm gave a rate of 7.9 per 1,000; in an Edinburgh hosiery firm of mostly female employees, 4.5 per 1,000; of an electrical engineering firm employing about 500, the rate was 64.2 per 1,000 for males, and 58.8 for females.

The survey disclosed that over 50 per cent of the males and about 33 per cent of the females lose the sight of one eye through injury, the incidence of non-industrial injury being equal in the sexes. "In the later ages," says the report, "the usual degenerative changes—cataract, glaucoma and myopia, — predominantly binocular causes, increased in prominence, but do not affect this inquiry.

"From these sources of information," concludes the report, "it would appear generally:

"(a) that the important causes of monocular blindness, ignoring later adult life and old age, are untreated

squint and amblyopia of childhood, and to a lesser extent, injury;

"(b) that, apart from some male excess in injuries, there is no significant sex variation;

"(c) that the condition is not, from the industrial point of view, seriously incapacitating or, relative to other problems, of great public health importance; but it is sufficiently common to point the need for early treatment of squint and the zealous pursuit of measures designed to prevent damage from industrial eye injury."

France

International Society Elects Committee Member

At a recent meeting of the International Association for the Prevention of Blindness, Franklin M. Foote, M.D., executive director of the National Society, was elected a member of the executive committee of the international group. At the same time the International Association requested that the offices of the American Society be considered the regional headquarters of the International Society for the Western Hemisphere. Conrad Berens, M.D., of the National Society's Board, is both a member of the executive committee and vice president of the International Association. The National Society was represented at the recent meeting of the International Association by Bernard Samuels, M.D., who was in Paris to help with plans for the meeting of the International Congress of Ophthalmology in New York City in October, 1954.

Nigeria

Causes of Blindness

Figures have just been received on the incidence and causes of blindness for the year 1950 at the Sudan Interior Mission Eye Hospital, located in Kano, Nigeria, West Africa. M. Douglas Hursh, M.D., medical superintendent, who is now on a year's leave of absence in the United States, indicates in his report for 1950 that the Hospital had 8,346 eye cases; the standard for blindness was finger vision at three feet or less. The causes of blindness ranged as follows: cataract, 195; trachomatous pannus, 181; glaucoma, 99; atrophy bulbi, 50; leucoma, 50; optic atrophy, 46; iritis and sequelae, 27; corneal ulcer, 20; choroiditis, 5; pseudo-glioma, 5; endophthalmitis, 2; miscellaneous (undiagnosed), 2; keratitis, 1; the total amounting to 690. In addition there were 176 cases of bilateral blindness from different unilateral causes. The incidence of the blind patients was 10.3 per cent of the total 8,346 hospital cases for 1950.

Portugal

International Congress on Industrial Medicine

Hedwig S. Kuhn, M.D., represents the National Society for the Prevention of Blindness in Lisbon, Portugal, September 9-15, 1951. Dr. Kuhn is a member of the National Society's Industrial Advisory Committee and internationally active in the promotion of occupational vision programs.

Note and Comment

Calling All Sight-Savers!

Pittsburgh, Pennsylvania will be the scene of the 1952 Annual Conference of the National Society for the Prevention of Blindness, to be held March 19, 20 and 21. Headquarters will be located at the Hotel Schenley, and the meetings and exhibits will be held at the famous Mellon Institute. Reservations should be made well in advance by writing to the Hotel Schenley directly. The conference is being planned with the full cooperation of the many local agencies concerned with various aspects of sight conservation. Anyone wishing further information regarding the availability of exhibit space may address inquiries directly to the National Society for the Prevention of Blindness. Readers of the REVIEW are urged to note the dates, the place and the occasion, and plan to attend.

A.M.A. Reaffirms Stand on Information to Prevent Blindness

As noted in the Winter, 1950 SIGHT-SAVING REVIEW, the American Medical Association last year adopted the following resolution regarding the dissemination of information designed to prevent blindness:

"Whereas, It is not contrary to the Principles of Medical Ethics as determined by the American Medical Association for members of the Association to disseminate information pertaining to matters of

public health, such as cancer, diabetes and venereal disease, by lectures, demonstrations, radio talks, pamphlets and conferences or other means to nonmedical groups; and

"Whereas, Ophthalmic subjects, such as vascular disease, glaucoma, retinal disorders and optic nerve disease, considered as potential causes of blindness are matters of grave importance to the public; and

"Whereas, The prevention of blindness is one of the chief obligations of ophthalmologists; therefore be it

"Resolved, That the Section on Ophthalmology of the American Medical Association declares that it is entirely within the definition of medical ethics for its members to engage in lectures, demonstrations, the preparation of pamphlets and other measures suitable for the dissemination of information designed to prevent blindness, and directed to any nonmedical group."

On June 12, during the 1951 A.M.A. meeting, a report was presented to the House of Delegates asking for reconsideration of the 1950 resolution. The group seeking such reconsideration "sensed the encouragement which this favorable action offers to such groups as the optometrists in seeking, as they constantly do, legislation to expand their field of professional activity more and more into the field of medicine in eye conditions . . . and brings the subject to the attention of the House at this time, believing

that such implications of the resolution favorably acted on last December may not have been fully realized by the reference committee of the 1950 House of Delegates."

This request for consideration, following the usual practice of the A.M.A. House of Delegates, was referred to the Reference Committee on Miscellaneous Business which held lengthy hearings that afternoon. On June 13, 1951, Dr. Andrew A. Eggston, chairman of this Committee, presented the following report which was duly adopted after discussion:

"Your reference committee after hearing the delegates from the Section on Ophthalmology and a majority of the other ophthalmologists present who were in favor of the resolution as passed by the House of Delegates in 1950, and after consideration of all the implications of possible invasion in the practice of medicine mentioned by the Judicial Council, approves of the action of the House of Delegates taken in 1950."

Thus the official governing body of the American Medical Association upheld its stand taken in 1950 that it is ethical for physicians to cooperate with any nonmedical group in giving lectures and demonstrations for the dissemination of information designed to prevent blindness.

Helen Keller Gets Shotwell Award

Adding another jewel to her crown of glory, the National Society's honorary vice-president, Helen Keller, received the 1951 Ambrose M. Shotwell gold medal, in recognition of her outstanding work. Readers will recall our own Winifred Hathaway was a

previous recipient of this signal honor. The dynamic Miss Keller and her equally energetic companion, Miss Polly Thompson, have recently covered half the globe—from South Africa to Western Europe—spreading the message of the world-wide needs of the blind and the universal need for an aggressive attack on the causes of blindness.

Survey of Sanitation in Kentucky Schools

The Kentucky State Department of Health in its *News and Plans* for July, 1951, calls attention to its survey of the Kentucky schools during 1950-51. During that period 259 schools in 16 average counties were inspected by the Division of Public Health Sanitation. Specially pertinent to the field of sight conservation were the findings regarding lighting and condition of the walls of the schools. In approximately 72 per cent of the schools, the walls were in bad condition. "Poor lighting in 58.6 per cent of the schools surveyed," said the report, "affects the eyes of 20,233 children."

State Optometric Group Endorses Blindness Prevention

At the 46th annual convention of the Georgia Optometric Association held May 11-13, 1951, in Columbus, Georgia, the following resolution endorsing the National Society for the Prevention of Blindness was adopted:

"Whereas, the National Society for the Prevention of Blindness has made a distinguished record of serving to eliminate the blight of blindness from mankind; and

"Whereas, the National Society for the Prevention of Blindness is

undertaking an expansion of its program of research, community service and information;

"Now, Therefore be it Resolved that we go on record as wholeheartedly endorsing this movement and offering our full cooperation in helping to expand its fine work."

Georgia Tech Stresses Occupational Vision

Better vision programs as a tool for gearing up defense production and reducing man-hour loss will be stressed at the 4th annual Occupational Vision Congress at Georgia Institute of Technology in Atlanta, October 4 and 5. The event is made possible by close teamwork among educators, industrial executives, ophthalmologists, optometrists, lighting and painting engineers, safety engineers and industrial nurses. It is sponsored by the Engineering Extension Division, Georgia Institute of Technology; the Associated Industries of Georgia, the Cotton Manufacturers Association of Georgia; the Georgia Industrial Nurses Association; The Georgia Optometric Association, the Georgia Society of Ophthalmology; the Industrial Hygiene Division, Georgia State Health Department; and the Illuminating Engineering Society.

As a result of vision programs, production has been increased as much as 20 per cent, absenteeism lowered by 35 to 50 per cent, and accidents have been cut in half.

National Conference on Preventive Aspects of Chronic Disease

Commenting editorially on the prevention of chronic disease, *The Journal*

of the American Medical Association calls attention to the recent meeting of the National Conference on Preventive Aspects of Chronic Disease. The editorial cites the report of the Committee on Detection in Private Practice, pointing out that it "distinguishes between detection and screening by terming the latter 'presumptive,' rather than the definitive identification of ordinarily unrecognized disease. Important chronic diseases which can be detected at an early or 'latent' stage are certain forms of cancer, certain forms of heart disease (congenital, rheumatic, syphilitic), hypertension, malnutrition, obesity, visual defects, glaucoma, hearing defects, epilepsy, syphilis, diabetes, and pulmonary tuberculosis. The committee warns that detection of latent disease may have undesirable psychological effects if not carefully handled to insure that the patient does not exaggerate or misinterpret its significance. The committee's chief recommendation is that all physicians carry out detection in their own offices by utilizing the following procedures: (1) history, (2) physical examination, and (3) laboratory tests. However, recognizing the serious practical limitations to this recommendation, the committee suggests that mass screening tests be made available to physicians, as a service to which they may refer their patients.

"While the value of case-finding among persons who are not under medical care is not questioned," concludes the editorial, "it is probable that greater concentration for this purpose on persons who seek medical care would yield greater dividends in the prevention and control of chronic disease."

Chickens, Please Note!

Lest we think of prevention of blindness as confined to the human race, an interested member of the National Society has called our attention to a patent, registered with the United States Patent Office, for an eye-protector for chickens. This device, invented by Andrew Jackson, Jr., of Munich, Tennessee, and patented in 1903, "relates to eye-protectors, and more particularly to eye-protectors designed for fowls, so that they may be protected from other fowls that might attempt to peck them. . ." and yet "not interfere with the sight of the fowl."

INDUSTRY, PLEASE NOTE!

According to the most reliable information, the first "safety glasses" for human beings were introduced in the United States in 1907 or 1908, and the first really shatterproof safety glasses were not introduced until 1918.

Public Education Campaign

During the month of September, the National Society for the Prevention of Blindness has been conducting a special educational campaign on care of the eyes. As part of this campaign, special feature stories—with photographs—were distributed to newspapers and magazines. Scripts of varying lengths were also supplied to all radio and television stations throughout the country. Two films were produced for television spots—one is 20 seconds long; the other, 60 seconds. Car cards and a three-sheet poster were prepared for use in trains,

trolleys, buses and on station platforms. Prevention of blindness and other public health agencies can receive any of this material for local use by writing to the Society's public information department.

Prevention of Blindness Committees

The National Society now has statewide professional and lay committees with the following states: California, Colorado, Georgia, Indiana, Michigan and Missouri; and committees are in process of organization in Ohio and Wisconsin. Activities this fall begin with statewide meetings scheduled for Georgia, September 14; Michigan, September 19; Indiana, October 17; California—Los Angeles, week of October 22, San Francisco, week of October 29; Colorado, week of November 4. The committees plan to study the need of sight conservation throughout their states and promote volunteer programs in communities where special projects can be carried on.

Projection Magnifier Developed

The Projection Magnifier No. 30 with M1 hood, and M3 table, developed by the research laboratories of Franklin Institute has been used during the past year on an experimental basis, with several groups of partially seeing children. Evaluations received from the teachers who studied the instrument critically indicate that there is a definite need for a device of this kind and that it can serve a variety of useful purposes with partially seeing individuals.

However, several structural and operational modifications are necessary if the instrument is to be used

to maximum advantage. The following changes and improvements have been suggested by those who have used the magnifier: (1) a device to center the material being read; (2) a flange on either side to prevent material from "working off" the sliding rack; (3) some means of increasing the length of line magnified to eliminate constant lateral shifting; (4) a method of anchoring the instrument to prevent its movement on the table when the user presses his head against the viewer; (5) increased illumination of the viewing screen to secure better contrast; and (6) some means of "screening off" excessive room illumination.

A new model, designed to obviate many of these shortcomings, is now being developed by the Franklin Institute.

Medical Consultants Meeting

During the convention of the American Medical Association in Atlantic City, a meeting of the National Society's medical consultants was held on June 12, 1951 at which a number of medical social problems were discussed—among them the questions of the need to consider the recommendation of penicillin rather than one per cent silver nitrate as a prophylaxis against ophthalmia neonatorum for hospital deliveries, and the health and education of the partially seeing child.

Despite the fact that there has been considerable success in the use of the antibiotics as a prophylaxis, the group recommended continuing the use of one per cent silver nitrate as the prophylaxis of choice for ophthalmia neonatorum but urged that further studies on the use of antibiotics be encouraged. Apropos of the use of anti-

biotics, Nicholson J. Eastman, Obstetrician-in-Chief, The Johns Hopkins Hospital, Baltimore, Maryland, who has done much work and published material on the subject, writes: "In regard to the matter of sensitivity, I was for a while greatly concerned about this and as a matter of fact deferred sending our paper in for publication for a full year because of this potential threat. During this year I sought consultation from the leading authorities on antibiotic sensitivity in the country and found their advice so reassuring that I have reached the conclusion that a single instillation of the penicillin ointment in the newborn infant (in contrast to an adult) carries no likelihood of producing sensitivity. Only when penicillin ointment has been used in a quarter of a million cases or so, however, can we make this statement with absolute assurance and, as I said, I feel that your cautious attitude is fully justified."

The problem of education of partially seeing children (corrected visual acuity from 20/70 to 20/200) was discussed by the group which went on record as declaring that there is no accepted statement in medical literature which indicates that a progressive eye condition is aggravated by use of the eyes. So far as type of suitable education, each case should be considered individually, since some children are more likely to use the amount of vision they have more successfully than others. There was unanimous agreement that myopic children requiring four diopters or more correction, who have good visual acuity, should not be put in special classes as long as that vision is good.

Insurance Company Issues Industrial Pamphlet

The Metropolitan Life Insurance Company, through its Industrial Health Bureau, recently published "Methods of Protecting Eyesight in Industry," a 72-page illustrated booklet covering the subjects of industrial eye examinations; a description of the functions of the eye and techniques for vision testing; protection of eyes in industry; and industrial lighting. Consultants in the preparation of the pamphlet included Hedwig S. Kuhn, M.D., Secretary, Joint Committee on Industrial Ophthalmology, A.A.O.O. and the A.M.A.; Gertrude Rand, Ph.D., Institute of Ophthalmology, Presbyterian Hospital, New York, N.Y.; and the staffs of the Illuminating Engineering Society and the National Society.

Illinois Society Reports

With its customary verve the Illinois Society for the Prevention of Blindness presents its 34th Annual Report of activities, in 40 well printed, dynamically written pages.

Of special interest is the section on the Illinois Society's school vision screening program, accompanied by a simple chart and illustrations, which describes its joint efforts with the Illinois Optometric Association to educate the public on the need for eye care rather than simply the sale of glasses. The report deplores the use of undignified advertising and cites the comment of Superior Court Judge Stein in New Jersey, who stated in 1949 that "a neon sign . . . may be appropriate at the entrance of a saloon or night club but it does not comport with the dignity or self-

respect the public has a right to expect from its professional classes."

Other activities mentioned are the local eye bank; a vigorous anti-fire-works campaign; and its general public education activities, as well as its activities related to conserving the sight of the partially seeing school child.

Health Survey of Hunter Freshmen

The Department of Physiology, Health and Hygiene of Hunter College, New York, has just released a two-year survey on the health status of college freshmen. The findings include four phases of the total health pertinent to the college student: (1) general appearance and body grooming; (2) daily health practices; (3) emotional health and (4) incidence of disease and immunization.

The statistical material was collected through questionnaires, from the lower freshmen classes, over a period of four consecutive semesters and covered 1,033 students—more than one-third of the total lower freshmen population of 3,016 students—for the two-year period designated.

Regarding the subject of eyes, following are some pertinent facts revealed by the study: more than one-half of the 1,033 students reported normal vision; 47 per cent reported subnormal vision and approximately 3 per cent did not answer. The question of frequency of eye examinations revealed that approximately 81 per cent had had an eye examination within the past year; another 12 per cent had vision tests within the past two years; still another 2 per cent within a period of the past three years. A little over one per cent of the students had not had eye examina-

tions within the past three years, and 4 per cent of the students did not answer.

"Of the 485 whose vision was reported as not normal," says the report, "86 per cent wear glasses and only 8.8 per cent fail to do so. The eye disorder occurring most frequently is nearsightedness (one-third of those wearing corrective lenses suffer from this condition), while one-tenth of the students have astigmatism, and 5.5 per cent are farsighted."

Retrolental Fibroplasia Committee Meets

During the first meeting of the Committee on Retrolental Fibroplasia which was held in Atlantic City, June 13, 1951, V. Everett Kinsey, Ph.D., of Detroit, was named chairman and Franklin M. Foote, M.D., the National Society's executive director, was named secretary.

Various problems connected with the study of retrolental fibroplasia were discussed and plans were made for the committee to hold a second meeting in October when the American Academy of Pediatrics and the American Academy of Ophthalmology and Otolaryngology hold their meetings in Chicago.

A.N.A. Testifies for Defense Production Act

Mrs. Elizabeth K. Porter, R.N., president of the American Nurses Association and member on the Board of Editors of the *REVIEW*, recently testified before the House Banking and Currency Committee on legislation to extend and strengthen the Defense Production Act. Mrs. Porter told the committee in part: "Efforts to maintain an adequate nurse force

will be seriously jeopardized if our national government fails to correct economic imbalances and inequities that impose special burdens on nurses and other essential but marginal or fixed-income workers. . . . If present inflationary forces are permitted to go unchecked, if the cost of living continues to soar, nurses must face even greater economic hardships."

Cost of Eyeglasses in a National Health Service

Commenting on the ophthalmic services under the British National Health Service for the first two years, H. W. Steinhilber, Ph.D., Research Council for Economic Security, Chicago, states "the rush for eyeglasses also was wholly unanticipated. It was assumed originally that many people already had spectacles. There are no restrictions, however, on the number of spectacles, types of frames, frequency of visits, number of spares or replacement of broken parts. No central registration of services received by individual patients has been established. It has been felt, apparently, that the expense of such a registry might be greater than the savings effected.

"The original estimate for 1948-49 provided 3.1 million pounds for ophthalmic services. The required increase was five and one-half times, reaching 20 million pounds. Hopefully, the budget for the following year was fixed at 14.7 million pounds, but another 71 per cent had to be added, exceeding the previous year's revised estimate by 5.1 million pounds.

"It is hoped that in time the demand for spectacles also will decline as the backlog of needs is met. The fact still remains, however, that the

population is aging, that people over 40 generally require spectacles for reading, and that perfect adjustment requires replacement at short intervals between the ages of 40 and 60. The decrease in the number of dispensed spectacles may not be as large as expected.

"The same measure which assessed charges for dentures also requires the payment of half the cost of glasses. Previously, contributions were required only on frames other than the four standard types available. Like those for the dentures, the new charges are a temporary measure and will continue until 1954."

Report on Syphilitic Blindness in Ohio

Syphilis is first among the ten leading causes of blindness among indigents in Ohio, a ten-year survey discloses. Reporting on the survey in the *Journal of the A.M.A.* for August 18, Charles R. Freeble, Jr., M. D., of the Ohio Department of Health, and James F. Donohue, health program specialist of the United States Public Health Service, indicate that 6,442 persons were declared legally blind in Ohio on applications for financial aid. Of these, 4,015 persons became blind from undetermined causes. Of the 2,327 persons for whose blindness the cause was known, 507 (approximately 21 per cent) lost their sight as a result of syphilis. Causes of prenatal origin, the report discloses, accounted for 502 cases of blindness; diabetes ranked third, with 331 cases; injury fourth, with 326; and vascular disease fifth, with 147 cases. Gonorrhea ranked low on the list—25 cases, of which 23 were ophthalmia neonatorum.

The survey points out that although syphilis represented approximately 8

per cent of the total number of 6,442 persons declared legally blind, "many of the persons in whom cause was not specified or for whom the cause was attributed to 'prenatal origin' undoubtedly were blinded by syphilis. The figure quoted indicating that syphilis accounted for 20.9 per cent of those persons in whom the cause of blindness was specified perhaps represents a more realistic estimate of the size of the problem."

Some of those blinded by syphilis, though born with it, did not become blind until childhood or adolescence. However, the report calculated the median age of loss of sight was about 42 years, and the average age of reported infection of syphilis was 25 years.

Although intensive venereal disease control activities were in effect in Ohio during the ten-year period covered by the study, there was no significant decrease in the percentage.

ACTH and Cortisone in Eye Disease

The introduction of cortisone and ACTH has opened new vistas in the treatment of eye diseases, according to a report made at the closing session of the American Medical Association's annual meeting in Atlantic City.

Three doctors associated with the division of ophthalmology at the Louisiana State University School of Medicine, New Orleans, in a joint paper, said the two drugs seem able to control the inflammatory and exudative processes in some, but by no means in all, cases of sympathetic ophthalmia, an eye disorder which has a tendency to spread from one diseased organ to the other. The doctors are George M. Haik, Richey L.

Waugh, Jr., and Wood Lyda, who presented their paper before the Section on Ophthalmology. They reviewed the use of the hormones in the treatment of 72 cases, and stressed that the two drugs have been available for too brief a period to permit one to speak of cures. They also said that there is a wide variability of opinion as to what constitutes a good result. They classified 25 cases as "unsuccessful."

Nevertheless, they reached the tentative conclusion that these agents are more likely to accomplish the desired results if (1) they are given early in the course of the disease; (2) they are given in sufficiently large dosages; and (3) the disease is mild.

"Relapse may occur if therapy is withdrawn too soon or if too small a dosage is used, though re-treatment seems remarkably successful," they added. "The pattern of dosage and the best routes of administration are yet to be established."

The doctors pointed out that second courses of therapy were given in 17 cases in which relapse had occurred, with a resultant successful control of the disease in 16 instances.

Even when the hormones are used, prompt mydriasis (extreme dilatation of the pupil) is still an essential part of the treatment, they said. Neither is the need for antibiotic therapy eliminated; if anything, the necessity is increased.

Additions and Revisions

Readers of the REVIEW who have been receiving the *Eye Health and Safety News* will note that this publication has been changed to the *POB News*. The bulletin which has been changed in format and content to reach the lay as well as the professional reading public interested in current sight-saving activities is under the direction of the National Society's Information Service.

The 1951 edition of the Catalogue of Publications and other educational media has been revised and reclassified. Single copies are available upon request.

Among the new popular pamphlets released by the National Society within the past few months are three illustrated pamphlets: Publication No. 10, "Eyes . . . for the Future," 16 p. 10 cts., describing care of children's eyes; Publication No. 12, "Crossed Eyes—A Needless Handicap," 8 p. 5 cts.; and publication No. 13, "Glaucoma," 8 p. 5 cts. New publications for professional distribution include publication No. 122, "The Seeing Factors in Traffic Safety," by James E. Lebensohn, M.D., 12 p. 10 cts.; Publication No. 133, "The Industrial Nurse and Eye Care," 12 p. 10 cts.; and Publication No. 145, "Vocations for Sight-Saving Class Children," by Hazel C. McIntire, 4 p. 5 cts. Reductions are offered for quantity orders of 100 or more.

Current Articles of Interest

Midwife Practice and the Prevention of Ophthalmia Neonatorum, H. Hellendall, *M D* (a medical journal), May, 1951, Vol. VI, No. 5, p. 159.

In 1945 in the United States there were 167,805 births attended by midwives and in 1947, there were 176,158 midwife deliveries, an increase of 8,353 over the 1945 total. Thus, midwifery is still an important health problem, especially in regard to ophthalmia neonatorum. The number of new pupils in schools for the blind, blinded by this disease, has decreased from 28.2 per cent in 1906 to 2.9 per cent in 1945-46 due in large measure to the mandatory use of the Credé prophylaxis by physicians and midwives. While physicians in hospitals may use penicillin as prophylaxis in the eyes of the newborn, midwives should continue to use the long-established Credé prophylaxis.

Penicillin in the Prophylaxis of Ophthalmia Neonatorum, H. H. Davidson, J. H. Hill and N. J. Eastman, *The Journal of the American Medical Association*, April 7, 1951, Vol. 145, No. 14, pp. 1052-1055.

In a series of 9,241 newborns treated with penicillin intramuscularly as a preventive against gonorrheal ophthalmia, no cases of the disease developed. In an additional 4,163 newborns treated with penicillin ointment, intramuscular injection of penicillin or

silver nitrate (1 per cent) in weekly rotation, signs of local irritation developed in 10.6 per cent of the penicillin ointment series; in 13.8 per cent of the intramuscular injection of penicillin series; and in 48.7 per cent of the silver nitrate series. In the authors' experience penicillin ointment is the most efficacious, safest and least irritating agent for the prophylaxis of gonorrheal ophthalmia in hospital practice. They recommend that statutes and board of health regulations be changed to permit, in hospital practice, the instillation of penicillin ointment as a prophylaxis against ophthalmia neonatorum.

Radiation, Light, and Illumination, J. N. Aldington, *British Medical Journal*, Saturday, June 16, 1951, No. 4719, pp. 1353-1357.

Enumerates the principal groups of modern light sources and states that none of the different types seem to have characteristics which will eventually make it supersede the others—all having a particular contribution to make in the production of artificial light for the many varied purposes for which it is required.

Eye Protection is Easy, Safety Maintenance & Production, July, 1951, Vol. 102, No. 1, p. 21.

Each year industrial workers have 300,000 eye accidents, costing approx-

imately \$200,000,000. A means of reducing eye accidents is the proper selection of the type of modern improved goggle best suited to the individual job. The trend today is toward plastic safety goggles which are light, comfortable and, because of their structural qualities, more resistant in many instances to the eye hazards of various jobs.

Visual Illusions in Night Flying, H. A. Imus, Lt. Comdr. (MSC) USNR (Inactive), A. Graybiel, Capt. (MC), USN, R. H. Brown and J. I. Niven, *American Journal of Ophthalmology*, May, 1951, Vol. 34, No. 5, Part II, pp. 35-41.

"For a period of five years, a series of experiments have been conducted on the subject of orientation in space. The results have shown that hazards of flying are increased by illusions to which all pilots are susceptible. For example, it has been shown, beyond all doubt, that a pilot, when flying at night or in a fog, cannot tell whether he is in a climbing turn or in a diving turn. It is important, therefore, to explain the nature and cause of these illusions.

"Pilots should be convinced that they must rely upon the instruments in their plane. They must learn to ignore their bodily sensations, no matter how overpowering the latter may be. Much of the fear and mystery involved in spatial disorientation are removed when pilots understand the cause of these illusions and how to counteract them."

The Bacteriology of Eye Infections in the Mid-West, U.S.A., Colonel R. I. Pritikin, Lieutenant (JG) M. L. Duchon, and H. S. Farmer, *The Military*

Surgeon, April, 1951, Vol. 108, No. 4, pp. 309-313.

Laboratory investigation of the bacterial etiologic agents in eye infections was conducted in a large midwestern community with a highly industrialized economy and a large surrounding agricultural population. The various types of bacteria causing eye infections are discussed. All of the infections were treated with the newer antibiotic and antibacterial agents with most encouraging results. Aureomycin ophthalmic solution was found particularly effective and furacin ophthalmic ointment and solution showed evidence of a wide range of effectiveness in the infections studied.

Connecticut Fights Night Accidents, R. E. Simpson and R. S. Newhall, *Illuminating Engineering*, June, 1951, Vol. XLVI, No. 6, pp. 285-287.

Studies made before and after relighting some of Connecticut's thoroughfares show that adequate street lighting contributes materially to the reduction of street and highway accidents at night. Day and night traffic increased about 24 per cent and 29 per cent respectively, after relighting. Also, the number of night accidents was reduced by 24 per cent despite the increase in night traffic volume. Pedestrian accidents were about halved after relighting. For four streets on which cost figures were available, the annual increase in cost to the municipalities for street relighting amounted to \$12,697. One year after relighting, the cost of night accidents was reduced by \$13,393 below what it had been the year before, which, the authors say, proves the statement, "you pay for good street lighting, whether you get it or not."

The Functional Visual Activities in the Home, Illuminating Engineering, July, 1951, Vol. XLVI, No. 7, pp. 375-382.

Pictorial presentation of location of representative working areas in the home and accompanying information which will aid the designer to determine the performance of his equipment, the lighting engineer to measure the performance of an installation and the home owner to locate portable lamps for optimum lighting.

Television and Eyesight, R. L. Pevsner, *Today's Health*, April, 1951, Vol. 29, No. 4, p. 38.

Video viewing is a visual skill and, like reading, it must be properly learned to be enjoyed. In other visual activities the eyes are in constant motion, but in television the pictures on the screen move, while the eyes remain almost stationary. Practical pointers for maximum TV comfort include:

1. Always watch TV in a moderately lighted room.
2. Make sure you tune in properly.
3. Don't sit too close to the screen.
4. View the screen from a position as nearly level with it as possible.
5. Shift your gaze occasionally, instead of staring steadily at the screen.
6. Use discretion in avoiding excessively long periods of viewing. Don't persist beyond the point of fatigue.
7. If you experience visual discomfort from watching TV, consult a doctor.

Nutrition As Related to Ophthalmology, I. Givner, *The Eye, Ear, Nose & Throat Monthly*, March, 1951, Vol. XXX, No. 3, pp. 135-140.

It is pointed out here that not all ocular diseases accredited to nutri-

tional deficiencies can be attributed to a single deficiency and that usually several contributory factors are necessary for the production of pathogenic changes in the eye. Eye signs and symptoms of deficiency of vitamins A, B₁, B₂, C and E, and eye changes resulting from protein deprivation are presented. Discussion of the general diseases which produce eye changes of a nutritional character is limited to retinitis pigmentosa, diabetes and hypertension.

Apropos of the Classes for Partially Seeing at Paris, S. Delthil (Paris), *Journal d'Ophthalmologie Sociale*, Année 1950, pp. 29-31.

A school ophthalmological center was established in Paris to fill the need for early discovery of children with visual difficulties. Prior to this, these children were recruited in an empirical way with the result that the total number of children in classes for the partially seeing in Paris was only 100 out of a total student body of 400,000. Available statistics fix at 1 in 1,000 (the Americans 1 in 500) the proportion of those with serious visual deficiencies. Under the new plan children with visual problems are sent first to their own ophthalmologist, who refers them to the school eye hygiene center. Here they are reexamined, placed in classes for the partially seeing if necessary, and reexamined periodically. One year's experience showed that among the causes of visual difficulties refractive errors rank first, especially myopia (40 per cent). Following in order of importance are extreme farsightedness with or without astigmatism, congenital cataract, nystagmus and glaucoma. The author discusses the mental level of these children and concludes that

the majority reach the average level. She points out that responsibility for these children does not stop when they leave school, and she outlines a program for assuring them of regular employment.

Cataract, E. H. Callahan, *Today's Health*, June, 1951, Vol. 29, No. 6, p. 46.

Cataract is a condition in which the lens of the eye loses its transparency, becoming cloudy or opaque. The commonest type is senile cataract, others being traumatic cataracts, congenital cataracts, and cataracts caused by general diseases such as diabetes. In order to see clearly again, a cataract lens must be removed by surgery and a spectacle lens fitted to take over the job of focusing. This operation can be performed on older patients, even in their nineties, as well as on infants as young as six months of age. Cataract should not be allowed to get hypermature, because removal is then more difficult. Procedures involved in cataract operation are described, and the author points out that no dramatic return of vision occurs after removal of the cataract. Vision continues to improve after leaving the hospital but the eye cannot focus until fitted with a spectacle lens, usually about six weeks later. The first lens prescribed is temporary. Later, when healing is complete, a permanent lens is prescribed which lasts probably for several years.

Cataract Extraction in the One-Eyed Patient, A. Callahan, *Southern Medical Journal*, March, 1951, Vol. 44, No. 3, pp. 179-188.

A cataract was extracted from each of 75 one-eyed persons. The major causes of loss of the first eye were

complications following cataract extraction, primary glaucoma and severe trauma. Results show that visual acuity of 20/40 or better was achieved in 70 per cent of the patients and that, generally, complications after cataract extraction in the first eye could be avoided in the second with the exception of corneal dystrophy. The author describes the critical points of the pre-operative examination, preparation of the patient, and surgical technique used. He also provides information of general interest on cataract extraction, based on his experience with such complications as retinal detachment, glaucoma, and hypertensive and diabetic retinitis.

Ocular Manifestations of 100 Consecutive Cases of Multiple Sclerosis, J. C. Yaskin, E. B. Spaeth and R. J. Vernlund, *American Journal of Ophthalmology*, May, 1951, Vol. 34, No. 5, Part I, pp. 687-697.

Among 100 cases of multiple sclerosis, 56 had ocular manifestations of the disease. In 27 patients the ocular manifestations were the earliest symptoms with such varying complaints as blurring or jumpiness of vision, difficulty in focusing, double vision, and gradual progressive loss of vision. Of all cases, 73 per cent had other subjective neurologic manifestations, which means that 27 per cent of all cases had, at the onset, no symptomatology suggesting the disease except ophthalmic signs. The ocular symptoms of multiple sclerosis are often early and always prominent, and are objective as well as subjective. The symptoms include such conditions as retrobulbar neuritis, nystagmus, oculomotor disturbances, fundus changes, and less clearly defined complaints and objective findings.

The Chemistry of Rod Vision, G. Wald, *Science*, March 16, 1951, Vol. 113, No. 2933, pp. 287-291; *The Mechanism of Rhodopsin Synthesis*, R. Hubbard and G. Wald, the *Proceedings of the National Academy of Sciences*, February, 1951, Vol. 37, No. 2, pp. 69-79; *Role of Sulfhydryl Groups in the Bleaching and Synthesis of Rhodopsin*, G. Wald and P. K. Brown, *Federation Proceedings*, March, 1951, Vol. 10, No. 1, Part 1; and *Mechanism of Rhodopsin Synthesis*, R. Hubbard (introduced by G. Wald), *Federation Proceedings*, March, 1951, Vol. 10, No. 1, Part 1.

Attention is called to the above articles concerning excellent fundamental research work carried on at the Biological Laboratories of Harvard University, Cambridge, Massachusetts. This research dealing with chemistry of the retina was supported in part by the Medical Sciences Division of the Office of Naval Research.

The Dermatoses of the Eyelids, S. J. Zakon and A. L. Goldberg, *The Eye, Ear, Nose & Throat Monthly*, June, 1951, Vol. XXX, No. 6, p. 312.

Presents the common, less common and rare types of dermatoses of the eyelids (an area of predilection for a number of dermatoses) in the hope that ophthalmologists may be made more aware of these conditions—their early detection and proper treatment being of great benefit to patient and doctor alike.

Primary Pigmentary Degeneration of the Retina, N. Yourish, Captain, MC, U.S.A. (1), *United States Armed Forces Medical Journal*, June, 1951, Vol. II, No. 6, pp. 929-936.

Reviews pathology, diagnosis and

prognosis in this disease and includes 5 case reports. Retinal pigmentosa is important in military ophthalmology because disability becomes more severe in the military age group; night vision is the earliest function to be impaired; constriction of the peripheral visual fields progresses steadily in both eyes; and no known treatment is of value. Afflicted persons should be separated from the service before becoming a hazard to themselves or others.

Diseases of the Retina, Annual Review, A. E. Maumenee, *A.M.A. Archives of Ophthalmology*, May, 1951, Vol. 45, No. 5, pp. 572-604.

The author presents a brief review of each of 17 diseases of the retina, among them, congenital abnormalities, retrolental fibroplasia and retrolental membranes, macular lesions and hypertension, calling attention to recent advances and methods of examination.

Ocular Manifestations of Vitamin Deficiency, S. C. Udell, *Public Health Nursing*, April, 1951, Vol. 43, No. 4, pp. 219-221.

The following points are summarized: (1) Vitamin deficiency and faulty nutrition are recognized as important etiologic factors in ocular disturbances. (2) Manifesting symptoms and diseases of the eye which have been found directly related to deficiency disease are presented, together with a short review of the recent literature. (3) The specific vitamins have been classified with the particular ocular diseases associated with their deficiency. (4) The importance of the eye and balanced nutrition in the school and college health program is emphasized.

Pathogenesis of Ophthalmoplegic Migraine, B. J. Alpers and H. E. Yaskin, *A.M.A. Archives of Ophthalmology*, May, 1951, Vol. 45, No. 5, pp. 555-566.

The origin of ocular paralyses occurring in migraine (ophthalmoplegic migraine) is not known. Cerebral aneurysm has had wide acceptance as an explanation, but there is little evidence to support it. To test this concept, the authors studied two cases of ophthalmoplegic migraine and in neither case did they find an aneurysm. They present the clinical features and pathogenesis of ophthalmoplegic migraine.

Ophthalmoscopic Detection of Microfilaria of Onchocerca Volvulus, J. W. R. Sarkies, *The Lancet*, Saturday, June 2, 1951, Vol. CCLX, No. 6666, pp. 1205-1206.

Compares results obtained by ophthalmoscopy and by slit lamp examination for microfilariae (parasites) in 315 native school children and industrial workers of the lower Volga district of the Gold Coast. The author believes that for surveys of large numbers of people and for preliminary selection of cases, ophthalmoscopy has considerable advantage, but for minute examination of the eye, it does not take the place of the slit lamp.

Disturbance of the Pupillary Reactions, J. H. Doggart, *The Lancet*, Saturday, May 19, 1951, Vol. CCLX, No. 6664, pp. 1081-1083.

Among the disturbances of pupillary reactions are those associated with old age. Size and activity of the pupil are diminished by atrophic changes in the iris musculature, hyaline degeneration of the stroma, and per-

haps partial calcification of the iris vessels. At death there is a sudden opening of the pupil which people used to think of as the window through which the soul left the body. Among the special abnormalities the author cites the case of a Belgian lady whose chief device of allurements was her ability to contract and dilate her pupils at will. Concluding his discussion of pupillary reactions in health and disease, the author says that they are subject to innumerable congenital malformations as well as daily fluctuations in size, liable to be modified by age, and susceptible to the effect of drugs, injury and disease.

Non-Perforating Cyclodiathermy with Cyclodialysis Circumscripta in Glaucoma, V. Čavka (Yugoslavia), *British Journal of Ophthalmology*, May, 1951, Vol. XXXV, No. 5, pp. 307-312.

Results are presented on 30 cases of primary and 13 cases of secondary glaucoma in which non-perforating cyclodiathermy (destruction by diathermy of the ciliary body) with cyclodialysis (detaching the ciliary body from the sclera to effect reduction of intraocular tension) circumscripta was performed. In 10 cases the operation was done bilaterally. Intraocular pressure was reduced to normal in 41 eyes (76 per cent) and in the remaining 12 the pressure was reduced but not to normal.

Inferior Oblique Muscle in Head Tilt, J. D. Walker, *Texas State Journal of Medicine*, May, 1951, Vol. 47, No. 5, pp. 275-277.

What can the ophthalmologist promise a head tilt patient with hyperphoria or hypertropia after surgery upon the inferior oblique muscle? Dr.

Walker poses this question, answering that head tilt can be corrected by proper surgery upon the inferior oblique muscle if it is caused by hyperphoria or hypertropia. He discusses surgical correction and includes illustrations which show results of surgical treatment.

Early Clinical Results of ACTH and Cortisone Treatment of Ocular Diseases, J. R. Fitzgerald, J. G. Bellows, J. M. Donegan, R. C. Gamble, A. C. Krause, W. A. Mann, M. D. Pearlman, and T. N. Zekman, *A.M.A. Archives of Ophthalmology*, March, 1951, Vol. 45, No. 3, pp. 320-333.

The clinical material reported here represents the pooling of information from the largest eye clinics in the Chicago metropolitan area. A total of 198 patients treated with ACTH and cortisone are reported. The greatest therapeutic efficacy of these agents occurred in acute exudative inflammatory lesions of the uveal tract. Chronic inflammations in general responded less well than the acute. No therapeutic aid was evident in a variety of miscellaneous ocular conditions and diseases of the retina and optic nerve.

Cortisone in the Treatment of Phlyctenular Keratoconjunctivitis, P. Thygeson and M. H. Fritz, *American Journal of Ophthalmology*, March, 1951, Vol. 34, No. 3, pp. 357-360.

This disease continues to be an important cause of corneal scarring and visual loss, particularly among the Indians and Eskimos of Alaska. Ordinary forms of treatment are extremely unsatisfactory. The disease is usually associated with childhood tuberculosis, and prophylaxis depends on protection of the child from exposure to

tuberculosis. Fourteen cases of phlyctenular keratoconjunctivitis responded dramatically to the use of cortisone acetate by instillation or subconjunctival injection. In three cases recurrences after cessation of treatment yielded quickly to readministration of the drug. In an addendum, the authors report 12 more cases treated similarly. In all but one, activity was arrested within 48 hours.

Symposium: Collagen Diseases, *Transactions*, American Academy of Ophthalmology and Otolaryngology, May-June, 1951, pp. 536-575.

This symposium includes the following articles: *The Pathology of Collagen Diseases Applied to the Eye*, L. Christensen; *Clinical Observations of the Use of Cortisone in Ophthalmic Diseases*, J. W. Henderson and R. W. Hollenhorst; and *Clinical Experiences with ACTH and Cortisone in Ocular Diseases*, J. M. McLean, D. M. Gordon and H. Koteen.

Use of Adrenocorticotrophic Hormone and Cortisone in Ocular Disease, J. A. Olson, E. H. Steffensen, R. W. Smith, R. R. Margulis, and E. L. Whitney, *A.M.A. Archives of Ophthalmology*, March, 1951, Vol. 45, No. 3, pp. 274-300.

Of 51 patients with a wide variety of ocular lesions, 37 received ACTH and 14, cortisone. Both ACTH and cortisone gave excellent results in the group with acute inflammatory lesions. Chronic inflammatory diseases showed a definite, but transitory, response. No response in treatment of degenerative disease, primary glaucoma or optic nerve atrophy was observed. A limited response occurred in retinitis pigmentosa, but this cannot be evaluated

until treatment is completed in a larger group. No true complications of treatment were observed.

Use of Cortisone in Diseases of the Eye, F. S. Lavery, L. E. Werner, D. O'Donoghue, P. M. Guinan and J. Macdougald, *British Medical Journal*, June 9, 1951, No. 4718, pp. 1285-1289.

Cortisone was used in 143 cases of a variety of eye conditions, administered mostly by subconjunctival injection or drops. The authors conclude that cortisone is very valuable in the control of allergic reactions in the eye, but has no effect on any underlying disease which may be the basic condition.

Topical Cortisone in Eye Disease, C. D. F. Jensen and J. F. Ward, *Northwest Medicine*, January, 1951, Vol. 50, No. 1, pp. 36-38.

Recently it has been found that many inflammatory diseases of the anterior segment of the eye respond dramatically to instillation of cortisone—a matter of profound and far-reaching value. Thirteen case histories of patients with a variety of inflammatory and traumatic eye diseases treated with topical cortisone are presented. All responded favorably, some so quickly and dramatically as to be almost incredible. The ease, simplicity, low cost and absence of undesirable side effects are other advantages associated with the instillation of topical cortisone.

Effect of ACTH and Cortisone on Ocular Disease, M. J. Hogan, E. P. Engelman, P. Thygeson and M. Krupp, *American Journal of Ophthalmology*, May, 1951, Vol. 34, No. 5, Part II, pp. 73-86.

The authors' results in three cases of rheumatoid uveitis treated with ACTH and cortisone show that the acute phase of the inflammatory reaction may subside, leaving a residual low-grade inflammation that persists despite further treatment. Although not many conclusions can be drawn from so few cases, it is possible that with larger dosage or prolonged treatment more complete response might be obtained. Other cases reported include chronic recurrent granulomatous uveitis with secondary glaucoma; acute bilateral uveitis and papillitis; atopic dermatitis and keratoconjunctivitis; and vernal catarrh.

Topical Cortisone in Treatment of Syphilitic Ocular Disease, G. O. Horne, *British Medical Journal*, Saturday, June 9, 1951, No. 4718, pp. 1289-1291.

The author describes the beneficial effect of the topical application of cortisone in five cases of syphilitic ocular disease—iridocyclitis and interstitial keratitis.

Ophthalmic Use of Terramycin, A. E. Town, *American Journal of Ophthalmology*, May, 1951, Vol. 34, No. 5, Part I, pp. 723-726.

In 132 cases, terramycin proved effective against most micro-organisms and some viruses producing external ocular infections. Results in viral diseases were not as positive as in most other infections treated with terramycin, but favorable enough to warrant further investigation. The authors believe that the effect of terramycin in trachoma should be studied. They state that terramycin may be highly effective even when other antibiotics fail, and may be well tolerated when other antibiotics are not.

Terramycin, Aureomycin and Chloramphenicol in the Treatment of Trachoma, Y. Mitsui and C. Tanaka, *Antibiotics and Chemotherapy*, May, 1951, Vol. 1, No. 2, pp. 146-157.

Twenty-two cases of trachoma were treated with three different antibiotics. Trachoma and inclusion blennorrhea (an inflammatory disease of the conjunctiva) responded well to terramycin and aureomycin, but not to chloramphenicol. Terramycin seems to be considerably more efficacious than aureomycin, at least in the acute stage. The minimum effective dosage appears to be 0.5 per cent ointments of terramycin or aureomycin, applied topically three or four times daily. A 0.1 per cent ointment of terramycin is probably as effective as a 0.5 per cent ointment. Acute trachoma and inclusion blennorrhea, within one week of onset, may be cured in from 7 to 10 days without scarring. Acute trachoma, one to two months after onset, may be cured in from 2 to 5 weeks. In chronic trachoma 2 to 3 months' treatment with aureomycin or terramycin is required, although treatment for one month or less may be followed by a spontaneous cure during a one or two month follow-up period. Acute pannus and ulceration of the cornea seem to be cured in a few days after treatment with aureomycin or terramycin.

Aureomycin in the Treatment of Trachoma, R. Ching, Hong Kong, A.M.A. *Archives of Ophthalmology*, June, 1951, Vol. 45, No. 6, pp. 657-665.

"Data on a series of 44 selected trachoma patients hospitalized for aureomycin treatment are tabulated to show the effect of the antibiotic. Under similar conditions, eight patients were treated with 10 per cent sodium sulfacetimide, and five with penicillin 1,000 units per cubic centimeter, as controls. This study shows that trachoma itself and the complications due to a host of secondary organisms are two separate entities. Aureomycin has no effect on trachoma. Like a blunderbuss, it knocks out all the secondary organisms, including syphilis, in record time, and the effect lasts at least several months after the patient is discharged from the hospital. This experiment cannot refute the claim that aureomycin may have a destructive effect on the trachoma virus, but for verification . . . further . . . investigations must be made. If elimination of secondary inflammation means that trachoma is left a harmless disease . . . by our clinical concept, trachoma is cured. Aureomycin . . . is a valuable addition to our armamentarium for the therapeutics of trachoma."

Book Reviews

SURGERY OF THE EYE: INJURIES. Alston Callahan, B.A., M.S., (Ophth.), M.D., F.A.C.S. Springfield, Illinois: Charles C. Thomas, publisher, 1950, 217 p. with 357 illustrations, including colored plates. \$11.50.

Of primary interest to the ophthalmic surgeon, this monograph will serve as a valuable addition to his library. The author has succeeded in describing the various techniques with clarity and precision, and has profusely illustrated his textbook with drawings and photographs. These are all beautifully executed and correspond in quality with the subject matter. The surgical techniques described are those which have proved most successful in the author's hands, and are of great value to the ophthalmic surgeon in the treatment and repair of injuries and deformities in and about the orbit.

This textbook will be found most modern and practical by all ophthalmologists, and is an important contribution to ophthalmic literature.

HAROLD KIRSHNER, M.D.
New York, N. Y.

EYES IN INDUSTRY. Dorothy A. Campbell, M.A., M.B., B.S., W. J. B. Riddell, M.D., F.R.S.E., F.R.F.P.S., and Sir Arthur Salusbury MacNalty. London: Longmans, Green & Co., 1951, 234 p. \$6.50.

This book surveys the problems arising from the exorbitant demands made by modern industry on the

sense of vision. It should interest particularly the lay reader, whether a safety director or a plant manager, in what can be done to increase production, reduce wastage and prevent blindness through proper attention to eye care.

How the eyes work, nutrition, common eye defects, standards of eyesight in the Services, standards of illumination, and aids to vision are ably discussed in a general section. There follow sections on foreign body injuries, chemical hazards, radiation, industrial eye diseases, and an interesting chapter on the psychology of sight.

In Great Britain, only in isolated instances has much been done to assess the visual capacities of workers in relation to their jobs. Discussion of this subject, therefore, is limited to a brief and sound discussion of general principles.

It is encouraging to find Professor Riddell calling attention to agricultural eye injuries. Too often a farm laborer comes to an oculist with a seriously damaged eye and a history to the effect that he was untying a bale, repairing a fence, chopping wood or pruning a tree when something hit his eye. Even though the vision was hazy, he could not get medical care until the day's work was done. Undoubtedly today our men in the rice paddies of Korea receive more prompt treatment of serious eye injuries than do our own farmers. Dr. Riddell shows that agriculturalists in Great Britain rank next to metal-

workers and coal miners in incidence of eye injuries for which eyes must be removed. The need for more prevention work is obvious.

Both Professor Riddell and Sir Arthur S. MacNalty urge immediate irrigation with clean water in first-aid treatment of chemical eye injuries. Speed in washing out the eye is the essential factor. It is pointed out that attempts to neutralize acid or alkaline burns are obsolete, and if used at all should be applied only under medical direction.

This volume should help greatly in providing lay readers with an understanding of how better to care for eyes in industry.

THE DEVELOPMENT OF THE HUMAN EYE. Ida Mann, F.R.C.S., Eng., Surgeon. London: The British Medical Association, Second Edition, 1949, 312 p. Ill. \$6.50.

Ophthalmology is incalculably enriched every time a book by Ida Mann is published, and it is indeed so in regard to the appearance of the second edition of this monograph. As she says in her preface to this, the second edition, "Embryological knowledge changes but slowly and this edition contains little that is new, though certain sections have been brought up to date." While it might be difficult to cite without concentrated study how extensive the changes are since the publication of the first edition in 1928, it is to be noted that eight pages of the 22-page bibliography are filled with references dated past 1928. Needless to say, the volume is proving invaluable to the many ophthalmologists and other medical groups who have found it hard to obtain a copy of the original edition.

HANDBOOK OF PHYSICAL MEDICINE AND REHABILITATION. Council on Physical Medicine and Rehabilitation of the A.M.A. and 29 Contributions. Philadelphia: The Blakiston Company, 1950, 574 p. Ill. \$4.25.

The addition of the subject of rehabilitation to this handbook, which has hitherto appeared as the *Handbook of Physical Medicine*, has broadened the scope and brings under consideration all the medical, psychological, and social services through which individuals recovering from disease or injury may be taught to live, and if possible to work, with his remaining faculties. The section on Physical Medicine in Ophthalmology was prepared by Ray K. Daily, M.D., and Louis Daily, Jr., M.D., of Houston, Texas.

PHYSIOLOGY OF THE EYE—CLINICAL APPLICATION. Francis Heed Adler, M.A., M.D., F.A.C.S. St Louis: The C. V. Mosby Company, 1950, 709 p. \$12.00.

Because of the many advances that have increased understanding of the physiology of the eye during the past twenty years, Dr. Adler has wisely chosen to produce an entirely new book rather than a revision of his classic, *Clinical Physiology of the Eye*. In this outstanding new volume, knowledge of function and chemistry of the eye is used directly to throw light on how disease develops and to provide a more rational basis for treatment. Where facts are meager or their interpretation controversial, as in the mechanism of accommodation, the author impartially presents the major theories with the reasons therefor and then does not hesitate in conclusion to state his own preference.

The two chapters on the aqueous humor and the intraocular pressure very ably sum up what is known about the factors that may produce the glaucomas, and provide an excellent basis for understanding W. M. Grant's recent epoch-making studies on aqueous outflow.

In the chapter on light, standards of lighting are briefly discussed. Dr. Adler feels that too much stress has been placed on the amount of light under which the eye works best, and believes that for reading about 10 to 15 footcandles are advisable.

One of the great values of this work is the pointing up of problems in every field on which more fundamental scientific research is needed. For example, the author explains the changes known to occur in cataracts—early relative increase in water content of the lens; increase in ash in the nucleus; increase in sodium and calcium; decrease in potassium and protein; disappearance of glutathione; decrease in oxygen consumption; reduction in concentration of ascorbic acid; diminution in weight; and changes in capsular permeability. He then adds, "At present none of the changes known to occur in senile cataract can be looked upon as the initial cause of this form of lens opacity, but it seems more than likely that future research in the chemistry and metabolism of the lens will be rewarded by finding the initial mechanism which is upset in this most frequent malady of man's declining years. When this is known, it will not be long before the chemical treatment or prevention will replace the surgical removal of cataracts. At present there is nothing known which influences

the progression of lens changes in cataract nor prevents their formation. The claimed success of any treatment so far suggested has been based on untrustworthy evidence."

With the author's lucid style and the excellent illustrations, this volume is certain to be popular with the research worker as well as the student and practicing ophthalmologist.

ENCYCLOPEDIA OF THE EYE: DIAGNOSIS AND TREATMENT. Conrad Berens, M.D., F.A.C.S., and Edward Siegel, M.A., M.D. Philadelphia: J. B. Lippincott Company, 1950, 272 p. Ill. \$5.00.

Drs. Berens and Siegel have written an encyclopedia that undoubtedly will prove exceedingly useful, not only to medical students but also to general practitioners, optometrists, nurses and social workers. During his professional life every physician wishes to review periodically at least the clinical branches of medicine. This volume presents the highlights of current ophthalmic practice in convenient and interesting, ready-reference form. The extensive and well-written sections on glaucoma, conjunctivitis and pediatric ophthalmology perhaps are most valuable for the busy family doctor. Some industrial ophthalmologists will differ with the authors' recommendation to attempt neutralization of acid and alkaline burns of the eye rather than emphasizing the need for immediate irrigation with large amounts of water or saline solution. The discussion of industrial ophthalmology affords a brief review of the subject, which it is hoped will stimulate the reader to become better informed in this important field.